EDUCATIONAL REVIEW

PUBLISHED MONTHLY

Except July and August

VOLUME XXXVII

JANUARY—MAY

1909

EDUCATION LIBRARY

RAHWAY, N. J., AND NEW YORK

EDUCATIONAL REVIEW PUBLISHING COMPANY

PARIS: F. ALCAN BERLIN: MAYER & MÜLLER

LONDON: THE AMERICAN SCHOOL AND COLLEGE TEXT-BOOK AGENCY

1909

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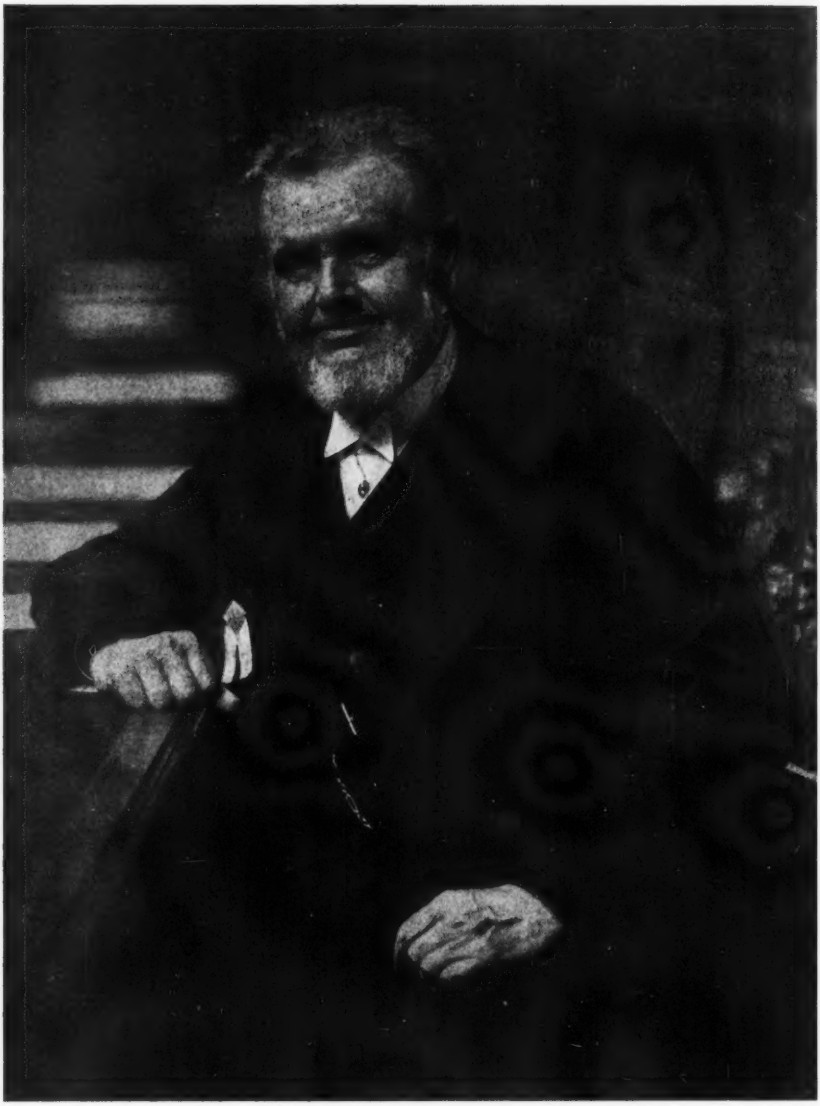
THE QUINN & BODEN CO. PRESS
RAHWAY, N. J.



FRIEDRICH THEODOR ALTHOFF

Born February 19, 1839 Died October 20, 1908

EDUCATIONAL REVIEW

JANUARY, 1909

I

FRIEDRICH ALTHOFF[1]

Education in Germany, as in the United States, is not controlled by the Imperial or Federal Government, but by the individual states. At the same time, the legislative and executive powers of the German states in this important field of administration are far superior to those granted to any state of the Union; for example, all of the German universities are state universities. There is, to be sure, nothing to prevent cities, corporations, and other associations from establishing institutions in which scientific learning is offered along university lines—and, indeed, there are several institutions of this kind—but these independent institutions enjoy no such privileges as are granted to the regular universities. In particular, they are not allowed to offer the preparation prescribed by law for the examinations in the various professions, since every candidate for the examinations prescribed for the Protestant and Catholic clergy, lawyers, higher judicial and administrative officials, physicians, and higher teachers, must have been enrolled for at least six half-years (at least ten half-years for physicians) at a German university, altho he may receive credit for three semesters past at foreign institutions recognized as equivalent in standing to the German universities.

The students of the universities and technological schools are supposed, under ordinary circumstances, to have received their preliminary training at a high school recognized by the

[1] Translated from the author's manuscript by Professor Rudolf Tombo, Jr., Columbia University.

state. Of these there are three kinds: the *Gymnasium,* the *Realgymnasium* and the *Oberrealschule,* each of which has nine classes and a nine-year course. In the course of study of the *Gymnasium* more emphasis is laid upon Latin and Greek than upon modern languages and natural science; the *Realgymnasium* excludes Greek, and the *Oberrealschule* Latin as well, from the course of study, the stress being laid upon French and English, mathematics and natural science. At the conclusion of this preparatory training, which is usually completed at the age of 18 or 19, the pupil must pass the so-called maturity examinations in order to be admitted to regular standing at the universities or technological schools.

The administration of the Prussian high schools may be under the control of the state or of the city. High schools under municipal regulation are not only under the supervision of state officials, but their equipments and courses of study must accord with those prescribed for the state institutions. They can engage only such teachers as have past the state examinations, and their salaries must be at least as high as those paid for corresponding positions in the state institutions. On the other hand, many of the city schools receive a regular appropriation from the state treasury. The *public* schools in Prussia are maintained by the various communities, altho those unable to carry the burden receive financial assistance from the state, which has complete jurisdiction over the system and administration of public school instruction and over the regulation of the teaching for

I have drawn this [illegible] sketch of the German educational system in order that American readers may realize what a tremendous influence a high official of the Prussian Ministry of Education can exercise upon the organization and management of the entire educational structure. It has, however, rarely happened that a man in such a position has developed such a profound, versatile, and fruitful activity as did Dr. Althoff, who for a quarter of a century controlled the state administration of the Prussian universities, later also that of the technological schools and other higher institutions of learning, and persistently promoted the development of this great field of

education. Sickness forced him to lay down his work in October, 1907. Upon his death, exactly a year later, his former opponents vied with his stanchest friends in paying tribute to the immense value of his services. Since the establishment of the German-American exchange of professors is due to his efforts, a sketch of his life and his work will no doubt be of interest.

Friedrich Theodor Althoff was born on February 19, 1839, in the Low Rhenish town of Dinslaken. He received his early education at the *Gymnasium* in Wesel, and then studied law at Bonn. In 1869 he past the third of the state examinations in jurisprudence prescribed at that time in Prussia, and was assigned to the district court in Bonn. His intention was to enter the Imperial Supreme Court of Commerce in Leipzig as an attorney, and at the same time to establish himself as a *docent* at the university in that city. While engaged in scientific studies in preparation for this activity, he received and accepted a call in the spring of 1871 to an administrative position in the department for ecclesiastical and educational affairs of the newly organized government of Alsace-Lorraine; thus the field was open to him in which his conspicuous talents were destined to bring forth their full fruit. He took a prominent part in the preparations for the foundation of the University of Strassburg, and thus became conversant with all the details of university administration. When the university was opened in October, 1872, he was appointed to an associate professorship in the faculty of political science, at the same time retaining his administrative post. In 1880, he was made a full professor, and two years later he was made a member of the State Council of Alsace-Lorraine. But in October of the same year he entered a new and wider field of activity, in which he accomplished his real life work: He received a call to Berlin as reporting counselor in the Prussian Ministry of Education and was assigned to the personnel division of the university department. He was well fitted for this important post, for thru his experience in university administration at Strassburg, he had acquired an extensive knowledge of the teaching forces of the other German universities; on the other hand, he

had, as a university instructor, become acquainted with university life from within. A reporting counselor of a ministry has, of course, no independently decisive authority; he is only an adviser of the minister, and his suggestions and proposals even require the signature of an intermediary, that is, of the director in charge of a larger department of the ministry. Nevertheless, a reporting counselor is accorded initiative in his own special sphere, so Althoff soon attained an influence in his new office commensurate with the force of his personality and his comprehensive knowledge of his field.

What distinguished him above all else in his official career was the lightning-like rapidity with which he grasped the essential point of even the most complicated problem, and the consummate skill he developed in discovering the proper means for the attainment of his aims. The fundamental factor in these capacities, however, was the astonishing knowledge of details concerning individuals as well as things; this he owed to his untiring energy. Above all else, his work was productive of results because he loved it for its own sake and devoted himself to it body and soul. He felt compelled constantly to attack new problems, and the greater the difficulties and obstacles he encountered, the more was he attracted to the work in hand.

In his first position as reporting counselor he, in fact, altho not formally, exercised an effective control over all appointments to the teaching staff at the ten Prussian universities. Whenever a chair is vacated in one of these universities, the faculties have the right, in some cases by an unwritten law, in others in accordance with the statutes, to nominate three candidates for the position. In most instances, one of these nominees is actually appointed, yet this is done only on the basis of a thoro examination of the fitness of the candidates by the reporting counselor, who must, therefore, be extremely well posted on the professional standing and the teaching abilities of all the professors and docents, not only at the Prussian, but at all the other German universities. In this phase of his activity, particularly, Althoff had no equal. He was continually collecting opinions and estimates about the younger generation of academic instructors from recognized

scientific authorities, and in the same way, he seized every opportunity to become personally acquainted with as large a number of professors and docents as possible. When, occasionally, he did not accept the suggestion of the faculties, and filled a vacancy by appointing a scholar who had not previously been nominated for the position, he usually had the satisfaction later on of having his choice recognized as the more apt. This is easily explained, for even at the larger universities many subjects have only a single representative in the faculties, and when this representative dies, the faculty is not in a position to propose a suitable successor on the basis of its own knowledge, but it must seek advice at the hands of the specialists at the other universities and make its nomination on the basis of the information thus secured. Althoff, however, possest more reliable information about the personalities and the records of the candidates under consideration than the faculties could secure thru such hastily conducted inquiries; and inasmuch as his decisions were governed exclusively by his regard for the best interests of science, the occasional exercise of his ministerial authority in opposition to the proposals of the faculties generally advanced the effectiveness of the university.

Serious differences can arise only when such decisions involve political, and especially sectarian, influences. All of the Prussian universities have theological faculties, two of them, Bonn and Breslau, having a Catholic as well as a Protestant faculty, and one of them, Münster, only a Catholic faculty. In appointments to the theological faculties, the wishes of the clerical authorities must, of course, be consulted, and these are frequently not in accord with the scientific tendencies prevailing at a specific university. There is, in particular, much opposition between the orthodox and the liberal Protestants; and the ministry is forced to take this circumstance into account. Since Althoff was not a narrow partisan, in by far the larger number of his official activities, political or clerical issues play no rôle. In the theological field he endeavored as far as possible to satisfy all parties; and in connection with the Protestant theological professorships, especially, his aim was always to maintain a proper balance between the two chief

factions. In many cases of a political character, the decision rested in the hands of the minister, and all Althoff had to do was to carry it into effect. Even in his first position Althoff was able to contribute much to the advancement and better equipment of the Prussian universities. He was particularly active in urging the establishment of new chairs and new *institutes,* especially in the fields of medicine and natural science. This naturally involved large appropriations. Frequently, therefore, the chief difficulty in carrying his proposals into effect consisted in winning the minister of finance and his counselors over to his own view. In these conferences with the representatives of the ministry of finance, Althoff had an opportunity to manifest his remarkable talents of convincing even skeptical observers of the soundness of his plans.

A very important measure which he carried into effect, in coöperation with the ministry of finance, was the reform of the salary schedules of the universities. From time immemorial it had been the custom at the German universities to pay professors fixt salaries, in addition to which they received certain fees directly from the student body for their so-called private lectures, which constituted the greater part of their teaching activity. It may be urged in favor of this arrangement that it offers the possibility of securing for famous academic teachers an income that is compatible with their abilities. In reality, however, the size of the income from student fees depends more upon the subject a professor happens to represent, than upon his scientific attainments. In a large university the professor of civil law can count upon an enrollment of from one hundred to two hundred students in each of his courses, whereas a professor of Sanskrit or of astronomy will be satisfied with four or five students. The annual income from student fees of full professors consequently fluctuates between a few hundred marks and from 20,000 to 25,000 marks, in Berlin some even get as much as from 40,000 to 50,000 marks. As government officials, however, the professors are equal in rank, and their incomes from student fees can not be regarded as private earnings, but must be considered part and parcel

of their regular incomes, since they are secured purely and simply thru their official connections. This great variation in the salaries of professors who are otherwise equal in rank has, therefore, often been looked upon as an evil; so there are many who favor the abolition of student fees, as adopted in Austria in 1898. Althoff was not prepared to go to this extreme, however, but proposed a compromise, in accordance with which the professors obtain the entire incomes from student fees up to a sum of 3,000 marks (in Berlin to 4,500 marks), but half of the excess goes into a government fund, which is controlled solely in the interest of the universities and their academic teachers. All full and all associate professors, for example, whose incomes from student fees and other academic profits were small, had this increased by 800 marks, a sum which is shortly to be increased to 1,000 marks. In addition, other increases and fees may be paid from this fund in various ways, not only to professors but also to docents. This reform became operative in 1907 in connection with a general increase in the normal salaries of the professors. The professors at that time in office were given the choice of accepting the curtailment of their student fees together with an increase in their government salaries, or of adhering to the old system, while the new regulations of course became operative at once in the case of all new professorial appointments. It goes without saying that this arrangement of the salary schedule has been frequently criticized, but it has worked exceedingly well in practise. Above all, it did not, as had been widely predicted, result in placing the Prussian universities at a disadvantage in the selection and retention of instructors in competition with the other German universities, which had not adopted the Prussian salary system.

In 1897 Althoff was appointed director of two departments of the ministry, which involved the administration not only of the entire university system, but also of the technological schools and all of the high schools (*Gymnasien, Realgymnasien, Oberrealschulen*) of Prussia. With his customary energy he at once set about the solution of the many new problems that presented themselves in his extended field of activity.

He had previously taken a warm interest in the improvement of the condition of the high school teachers, and he now attained very satisfactory results in this respect. He established, also, a new regulation for the government examination of this class of teachers. Of even greater importance, however, were the far-reaching reforms introduced in connection with the recognition of various modern forms of high schools. Many serious obstacles had to be overcome before these reforms, which were in accord with the suggestions of the Emperor, could be carried into effect. Prior to that time the normal approach to the study of the learned professions lay thru the *Gymnasium;* and, speaking broadly, the *testimonium maturitatis,* that is, the diploma of graduation from the *Gymnasium,* was demanded for matriculation at the university. The *testimonium maturitatis* of a *Realgymnasium,* however, was accepted for admission to only a few subjects of study, and the graduation diploma of an *Oberrealschule,* received at the end of a nine-year course, was even less valuable. Now, however, the principle has been established by an Imperial decree dated November 26, 1900, that the three classes of high schools furnish an equally desirable general education, altho in the case of one the humanistic element is emphasized, while in the other two the stress is laid on the *real* element. For that reason the graduation diplomas of the three kinds of high schools receive equal recognition for the admission of a student to university matriculation. A graduate of an *Oberrealschule,* who has had no instruction whatsoever in Latin or Greek, is now permitted on the basis of his *testimonium maturitatis* to matriculate as a candidate for the doctorate in law, medicine, or classical philology, and he must determine for himself how he shall acquire the knowledge of ancient languages required in his chosen study. The only exception to this rule is made for the faculty of theology, at the request of both the Protestant and Catholic authorities, the *testimonium maturitatis* of the *Gymnasium* only being accepted for admission to the study of theology. The three classes of institutions were, however, not merely placed on an identical footing with regard to their relation to the universities, but their courses of study were

modified in such a way as to further define their characteristic features.

Althoff now turned his attention also to the technological schools, his aim being to bring these institutions in every respect to the same level as that maintained by the universities, their older sister institutions. With this purpose in view, he secured for them the privilege of awarding an academic degree, specifically, the degree of doctor of engineering—his own suggestion. He deserves much credit, too, for the foundation of a new technological school at Danzig, the fourth one in the kingdom, and his services in this direction were recognized by the Emperor, who conferred the title of Excellency upon him on the occasion of the opening of this school in 1904. In spite of adverse financial conditions, he also succeeded in establishing a fifth technological school in Breslau, which is at present nearing completion.

Furthermore, he never allowed his interest in the universities themselves to wane for a moment. During the quarter-century of his official activity, from 1882 to 1907, the ordinary annual government expenditure for the Prussian universities increased from 5,633,455 marks to 12,229,855 marks, and in addition more than 60,000,000 marks have been appropriated during this period for extraordinary expenditures, especially for institutes and libraries. The university budget would unquestionably have grown by a thoroly natural process; but, on the other hand, it is absolutely certain that it would not have reached the figures that it has if Althoff had not fought unceasingly for the better equipment of the universities. It was also owing primarily to his efforts, that the Academy at Münster, composed of two faculties, was expanded into a university. The Academy at Posen was established at his instance, and the foundation was thus laid for the organization of another Prussian university.

Special attention was paid by Althoff to provisions for the further scientific education of members of the professions who were actually engaged in practise. For example, he founded in Berlin the *Vereinigung für Staatswissenschaftliche Fortbildung,* which now receives state aid, and which is intended

to be of service particularly to the younger judicial and administrative officials. Furthermore, the municipal academies of practical medicine in Cologne and Düsseldorf, which are intended to keep physicians abreast of the time in their chosen field, owe their origin to Althoff's suggestion, while the Empress Frederick House in Berlin, which is to serve as a center for the scientific advancement of the work of physicians, may be regarded as his creation. Its establishment was rendered possible by private contributions; and it was Althoff who, owing to his extensive acquaintance and wide influence, in an astonishingly short time raised the required sum. He had a prominent share, too, in the foundation and development of the Institute of Infectious Diseases, established in Berlin to continue the investigations of Robert Koch, an institution which has received an important adjunct in the Royal Institute for Experimental Therapeutics at Frankfort on the Main.

Apart from his official career, Althoff was unusually active in the field of social work. It was chiefly thru his endeavors that there was organized in 1895 the German General Committee for the Erection of Sanitariums for Consumptives, which has had great success in combating the white plague thruout the German Empire. This General Committee, at the same time, became the basis for the formation of the International Association for the Study and Prevention of Tuberculosis, upon the executive committee of which Althoff was represented: In fact, the last honor that came to him was the awarding to him of a gold medal at the annual meeting of the Association at Washington, in September, 1908. He was always profoundly interested in the advancement of the scientific relations between Germany and the United States. It was due to his efforts, for example, that the Ministry of Education decided to be represented at the Chicago Exposition in 1893; and in connection with the German educational exhibit, he arranged for the publication of a comprehensive work on German universities. In the same way he saw to it that German education was fittingly represented at the St. Louis Exposition, in connection with which the Ministry published a work in several volumes on the German educational system. Of more than

ordinary value was the exchange of German and American professors organized by him, an arrangement which, we may hope, has become a permanent one.

In the midst of the most energetic exercise of his indefatigable activity he was attacked by a puzzling intestinal malady, which in the course of a few years undermined his powerful constitution. In October, 1907, he was compelled by physicians' demands to offer his resignation. The Emperor, who always gave full recognition to his great service, appointed him on this occasion member of the House of Lords and Crown Syndic. It was impossible for him, however, to remain idle. He continued to make all manner of plans, especially along sociological lines, and had the satisfaction of observing that his efforts were not in vain. A sudden change for the worse in his malady set in on October 11, resulting in a weakness of the heart, which led to a painless end on October 20. He awaited death with the calm of the sage. "He possest not the spirit of fear, but the spirit of strength," as Professor Harnack said in his impressive funeral oration, "and," he added with justice, "the spirit of love." Altho Althoff occasionally seemed to display a certain external gruffness, he was nevertheless kind and considerate at heart. He not only took a warm interest in his official activity in the support of needy officials, widows, and orphans, but showed great personal generosity in the alleviation of human suffering. The tremendous breadth of his activity naturally compelled him often to ignore individual opinions, wishes, and interests, and as a result he did not lack enemies, especially among university professors, many of whom could not accustom themselves to his innovations. But when he resigned his office, it at once became manifest that even his opponents regarded his withdrawal as an irreparable loss for the Prussian universities. At his grave, scholars and the press were unanimous in agreeing that his name will occupy forever an honorable place in the history of Prussian and German education.

W. Lexis

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II

THE NEW MOVEMENT IN PHYSICS TEACHING

The introduction of the study of physics to any extent into our schools is nearly, if not quite, within the recollection of men still young. Those old text-books with their rude cuts and quaint illustrations and terms seem odd enough today. Their subject-matter represented a distinct effort to lead the students to an understanding of various natural phenomena as far as it could be given at that time. The work was largely confined to a study of the text, and what few experiments there were were performed mainly by the teacher with crude and insufficient apparatus. There was that in the subject, however, which made for growth. It satisfied in a way a natural and legitimate curiosity, and it gave valuable material for advancement toward better conditions of life, and a better understanding to combat old superstitions and false ideas; it had an end in itself, and was not distinctly an effort to prepare for subsequent higher work. The conditions were right for a natural evolutionary growth, and the newer books and treatment were better than the old. Soon we reached the stage indicated by that much derided book, Steele's *Fourteen weeks,* imperfect in many particulars, and decidedly misnamed in that a year was probably more often given than fourteen weeks; but marking a distinct advance, since it urged more strongly the experimental side with adequate apparatus.

Then came the decree from above that the work was unsatisfactory and must be changed to meet college entrance requirements. We all know the immediate result. We entered upon the era of original investigation and discovery with all its attendant evils of work utterly beyond the ability of the pupils, both in quality and quantity. This extreme is now freely admitted to have been a great mistake. Nevertheless,

much of benefit resulted. The need of an adequate equipment and of intelligent experimentation by the pupil became fully realized and our best schools are now equipped accordingly, tho in many cases there has been a lavish waste of money in the purchase of high-priced and utterly unsuitable apparatus.

The greatest harm, in my judgment, growing out of the period, and the real cause of the dissatisfaction which has since existed was due to the fact that the natural development or evolution taking place was arbitrarily checked, and a natural growth was supplanted by an artificial one directed by college (not high school) specialists, men very able, no doubt, in their own lines but with the usual and almost inevitable inability to deal with the presentation of subjects in a way suited to secondary pupils. This college specialist influence, acting thru college entrance requirements and thru text-books prepared in accordance with these requirements, dominates the teaching of physics in our secondary schools today.

Naturally, two opposing schools have grown up, each with its more or less distinctly defined idea of the purpose of the work to be undertaken. The term "New Movement" has been applied to the efforts of those who are protesting against the present influences, methods, and tendencies. The name is a misnomer; the movement is not new except that it is a fresh, vigorous effort to get back to the original purpose and work it out, making full use of the many advantages and of the many new and clearer ideas which have been gained in the great experiment which has been going on.

There can be no doubt of the existence of this new movement toward the old. Its purpose is to secure the general adoption of what in the absence of better language may be stated as follows as the fundamental aim of the work in physics in the secondary schools: To bring the pupil to understand as fully as possible the processes and principles underlying the natural phenomena taking place about him. He should first of all be taught how physical phenomena take place and the principles which seem to be manifested in the phenomena.

The extent and present condition of this movement are

shown by the vigorous protests against the prevailing ideas, coming from all parts of the country. These protests come from large numbers of the most successful teachers and principals in our high schools, from organized societies state and interstate, and even from many college specialists who realize the dangers of the standards dominating at present.

The aim which the new movement seeks to combat and which is distinctly opposed to that exprest above may be stated in language essentially as given by one of its strong advocates. Physics is in its nature an exact quantitative science; it is the only such science in our high school course and should, therefore, be treated quantitatively in order to train pupils in accurate and exact thinking.

This conception of the purpose of physics has, as might be expected, resulted in the present undue emphasis upon the manipulation of complicated apparatus, exact measurement, work with abstract or (to the pupil) vague units, application of imperfectly understood mathematical formulas, with a corresponding lack of emphasis on the underlying laws and principles, a clear understanding of which is absolutely essential in securing both a practical every-day application and the culture value which comes from an intelligent comprehension of what is going on in the world about us. I make this statement not as a theoretical one, but as one based upon observations of work in hundreds of classes, including my own.

I have generally found very simple questioning to be sufficient to show the exceedingly vague ideas of the meaning of the results, both mathematical and experimental, of a large part of what is presented in the texts and laboratory manuals now in use. Anxiety to secure the accurate results demanded in experimentation leads to the use of such complicated and delicate apparatus that the underlying principle is utterly lost sight of in the confusion resulting from the manipulation of the instrument. A typical case is one in which the pupils were unable to point out the spool of wire the resistance of which they were measuring with the Wheatstone bridge, and which they had placed in position. The mathematics, too, is so encumbered with operations and extended fractions that

there is no meaning to the answer. Repeatedly, when pupils have been working problems using, for instance, such fractions as .000017 to express a coefficient of expansion, I have asked for a plain English statement of the meaning of the fraction either used in the solution or obtained as a result, and I have invariably found the greatest difficulty in securing a satisfactory answer from even a small minority of the class, altho at the same time the majority had quite easily solved the problem. When mathematical formulas are used the matter is still worse; they serve to complicate rather than to simplify, and their use becomes a mere mechanical operation, meaningless and so injurious rather than beneficial. As one of the many illustrations which I might give I recall an experience within the last few weeks. A class which I judged to be at least up to the average was reviewing the formulas of accelerated motion preparatory to the study of falling bodies. I asked for a translation of $S = 1\text{-}2\ a\ t^2$. It was readily given as "The distance equals one-half the acceleration multiplied by the square of the time." Further questioning, however, developed the fact that no one really knew what distance was meant, a few being of the opinion that it was the distance past over the first unit of time, others agreeing that it was the distance past over in any unit, while one lone student thought that it was the distance in any number of units. The opinion was nearly unanimous that S in $S = vt$ had a quite different meaning from the S in $S = 1\text{-}2\ a\ t^2$. Questioning in regard to the meaning of a in the same equation generally shows still greater confusion. This may fairly be considered one of the easier formulas made use of in the texts. I do not mean to say that I would use no formulas whatever or that I would insist that a formula should never be used as a factor in the solution of a problem unless it is understood; but the explanation of the above, and others more difficult, is demanded in our modern texts with the result that unless an unjustifiable amount of time and effort is expended the pupil's mind is left befogged and uncertain while the fundamentals are neglected. The plea is made that physics is a hard study and is valuable on that account. I grant this; but a mere manipula-

tion of apparatus, or an insertion of numbers in a mathematical formula unaccompanied by an intelligent appreciation of the why can not be called real work. Such exercises to be profitable in physics must be preceded by a careful study of the phenomena involved, a study which can be made profitable and attractive to high school students, girls as well as boys, and at the same time give abundant opportunity for solid thinking. I believe, too, that this would be found to be the best preparation for the higher institutions. The accurate quantitative work, generally speaking, belongs to the college. More than once I have heard college professors say that they should hesitate to offer their sophomores much of what is included in our high school texts.

I might give illustrations of failures almost indefinitely, some of which would be ridiculous were they not such a revelation of the imposition upon pupils of work utterly beyond their experience, maturity, and ability, at least under our present conditions. For instance, I was told in a large school by two young ladies watching a pendulum vibrate that they were trying to find the specific gravity of the city. After this error was partly corrected they were uncertain whether the answer would be in grams, meters, pounds, or inches. In another school a number of pupils, after a somewhat extended study of the primary and secondary coils, were very willing to search for the contacts of the outer and inner coils. It was a Canadian examiner and teacher who, in speaking strongly on this subject, gave as a somewhat typical illustration the definition of an erg as he found it in an examination paper, "An erg is the smallest possible amount of work a man can do."

Now, these last may be somewhat extreme instances, but as my observation goes they may be taken in a modified form as fairly illustrative of the results of a great deal of our work in even the best of our non-technical schools.

As I understand the new movement, it would not deny that physics is a quantitative study and that quantitative work must enter largely into the high school treatment of the subject, but it should be illustrative of phenomena, and this would imply

simple and plainly understood units with a very careful introduction of technical terms, accompanied by reiterated statements of the meaning in every-day language. A large block of iron, a simple spring balance, and a pail of water are much more valuable for the high school student in work in density than the fine balance and weights with a minute bit of a substance. An abundance of practical mathematical problems, too, should certainly be given, but when teachers with all their training and experience confess the amount of time and work they are obliged to give in mastering the pages of exercises, so that they may present them to their pupils, we do not wonder at the meager results.

Neither would the followers of the new movement necessarily limit the extent of the work to what I have indicated. They would, however, allow the teacher freedom to adapt the work both to the capacity of his class as a whole and to its individual members, and they protest against what they consider a wrong fundamental conception of the purpose of the study and against a standard which is fitted to a few only and is far above the average ability.

And now what of the future? There are several possible outcomes of the present agitation. If the colleges continue their present attitude and the high schools accede to it, the study will probably be made universally elective and will be taken only by boys who are preparing for the engineering courses. It will become, what was stated to me some time since by the principal of one of the large high school of the United States it had already become in his school, a mere study in applied mathematics. Certainly a deplorable outcome for a study of so great possibilities in practical information and disciplinary and culture value for all classes of people.

It may be that in the large schools special classes will be formed for students preparing for college and others for those who do not intend to study further, a course opposed by many as being contrary to the spirit of American institutions.

A third possibility, and the one earnestly advocated by some of the highest educational authorities in the country, is that of changing the college entrance requirements to conform to

the ideas of the new movement or to abolish specifications of definite subject-matter altogether and to accept properly certified work as entitled to credit for admission. And why should there be definite entrance requirements? A somewhat extensive inquiry not only in regard to physics, but in other studies as well, has failed to establish the fact that college work is directly based upon what has been done in the high school in any studies except mathematics and the languages. The strongest statement made has been that the work is somewhat easier for those who have had work in the high school. Only very lately the head of one of the largest departments of chemistry in the country made this statement to me and it was only a repetition of what I had heard many times. What possible reason then can there be for dictating the high school work? Certainly it is very little to ask that the large number of able high school teachers who are protesting against the present restrictions may be given freedom to administer such of their work as is not directly basal for college in their own way.

When college entrance requirements in physics are so modified that authors may be able to secure the publication of books not exactly in harmony in extent and nature of work with certain fixt ideas, and when teachers may feel free to adopt books suited to the needs and abilities of their pupils, we may hope to see the much-needed improvement in results.

This may take time, but vigorous, earnest efforts of independent associations will bring it to pass.

H. L. Terry

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III

THE ANSWER OF THE FAR EAST TO SOME AMERICAN COLLEGE QUESTIONS

The higher education of the Far East has largely developed, with the exception of Japan, without the influence of America. In India, Australia, and China this education has in fifty years sprung up and grown into great institutions. Light, therefore, should it be able to shed upon some of the problems of higher education in America.

(1) One of the fundamental problems of the American college is the question whether its education should be directed toward cultivation or toward vocation. Should it seek to make the man of culture or the man of efficiency, the great gentleman or the great administrator?

The answer which is, on the whole, given by the institutions of the East and the Far East is that the primary purpose of the higher education is to create and to train the great worker, the great worker in whatever field he may see fit to devote himself. The Eastern world has come to itself. It seeks for those who can develop its resources, improve its facilities, strengthen its forces, organize its society. China is among the oldest nations, Australia among the newest: both are alike new in the discovery and application of the powers which constitute the modern community and the Western Commonwealth. Each nation, therefore, seeks to transmute every available human power into a force for the development of the nation. The idea that the higher education is to train the great gentleman is one, I believe, which belongs to that time in the growth of a nation which follows what might be called its colonial period. It is one of the conditions—both cause and result—of the age of leisure. Into that period the modern world of the East has not yet come.

(2) The higher education of the East is carried on, leaving out Australian universities, without the aid of Greek, and usually, tho not so completely, without Latin. The two subjects which have largely contributed to the education of the Western world for hundreds of years have small part in the education of the whole Eastern world. It is a significant and impressive difference. The education has not, however, been without "a second language." Japan uses the classics of China, as does China herself, and India the Sanskrit language and literature. That general discipline, therefore, which is derived from the study of the grammar of a foreign language is not lost, neither is lost a certain historical perspective of the lengthened life of humanity, which the Greek and Latin do give to the Western student. Both of these advantages are of much worth. But a question also important is whether the literature of Sanskrit, or of the Chinese classics, is as rich as that of the language in which Homer sang, Plato reasoned, and Aristotle put forth great interpretations?

Opinion regarding this serious and large question may vary, but there are two somewhat fundamental considerations which seem to argue in favor of the superiority of the Greek: the literary form of the Greek is more orderly and refined. It is less fantastic. The Greek might be compared to a garden well-tilled and well-trimmed, the Chinese literature to a forest overgrown and straggling. The one represents a force which has been subdued to well-ordered method and law; the other is a force also but one which has not been subjected to discriminating judgment or well-considered regulation. The content, too, manifests a like dissimilarity. The Chinese classics are filled with ethical interpretation and applications even more than the Greek, but they do not have the simple interpretation of life in its morning which makes Homer eternally young. They also lack that tragic element which literature, as a true interpreter, must ever have. For life has it. They, furthermore, are without that philosophic insight into life's deepest problems which makes Plato as immortal as man. It must also be said they are not possest of the rigor of logical method which constitutes Aristotle a master. The an-

swer, therefore, of the relative value of the Chinese and Greek classics must be in favor of the Greek. The Sanskrit is in certain ways superior to the Chinese and approaches the Greek, to which in philological origin it is not unlike. The Homeric element of simplicity is more manifest in Sanskrit than any other great Greek element. But Sanskrit is lacking in sound philosophic interpretations of the great problems, in closely wrought logical reasoning as well as in metaphysical acumen.

If one were obliged to compare the work of either the Chinese or Sanskrit classics with the worth of the Latin language and literature, as an academic subject, I should be obliged to say that the argument is strongly in favor of the worth of the languages and literature of the ancient East than of Virgil, Horace, or Cicero. The more ancient classics are more original, giving a vision of a more pristine race, more affluent in great suggestions, more nobly laden with historic memorials and traditions.

Yet one does not forget what Max Müller said many years ago:

"I shall not attempt to prove that Sanskrit literature is as good as Greek literature. Why should we always compare? A study of Greek literature has its own purpose, but what I feel convinced of, and hope to convince you of, is that Sanskrit literature, if studied only in a right spirit, is full of human interests, full of lessons which even Greek could not teach us.

". . . If I should ask myself from what literature we, here in Europe, we who have been nurtured almost exclusively on the thoughts of Greeks and Romans, and of one Semitic race—the Jewish,—may draw that corrective which is most wanted in order to make our inner life more perfect, more comprehensive, more universal, in fact more truly human, not for this life only, but for a transfigured and eternal life—again I should point to India." [1]

(3) To the question whether the higher education should be based on the elective or on the prescribed system, the answer is clear, tho with a qualification. In the college and high

[1] *India—What can it teach us?* p. 23-4-5.

schools of the East one does not so much elect courses as he elects subjects: he elects those departments or groups which lead to a degree. This conclusion is to be inferred from the purpose of making efficient workers in a field and not of making large gentlemen of cultivation. The future career is chosen earlier than in either Germany, England, or the United States; and all studies are devoted to reaching the ultimate goal. What the mind may lack in breadth and insight, it gains in sharpness. In the Australian universities this process of early specialization has gone so far as to awaken protest in members of the Law and Medical Faculty. For instance, the sciences are studied more as a part of the preparation for the pursuit of medicine or for training teachers than as a means of general culture. The practise in most colleges of the East is toward a pretty thoroly specialized and prescribed system; but the result of the system would seem to prove for the American college and professional school the advantage of a liberal education.

(4) The Eastern mind is also divided, as is the Western, regarding the expediency of trying to teach morals and religion. On the one side, in respect to morals, it is argued that to attempt any such instruction is vain and visionary. But the practical teaching does obtain in all schools. The practical emphasis on such teaching is, of course, less and the theoretical greater, in the higher institutions. The following are the subjects discust in an advanced Japanese text-book on ethics:

Chapter I.—Introduction.
Section 1. Definition of ethics.
" 2. Characteristics of ethics:—worth; ideal; law.
" 3. Ethical questions:—morality; the ground of morals; motives; the application of principles.

Chapter II.—Conscience.
Section 1. Moral consciousness.
" 2. Properties of conscience:—intellectual elements; emotional elements; volitional elements.

Section 3. Working of conscience:—motives; authority of conscience; right and wrong.

" 4. The origin and development of conscience.

Chapter III.—Conduct and character.

Section 1. Moral conduct:—consciousness; freedom; conscience.

" 2. Elements of conduct:—motive; action; effect; purpose.

" 3. Properties and working of these elements:—motive (impulse, instinct, reason); actions; effects; purpose

" 4. Character:—unconscious elements; conscious elements.

" 5. Responsibility:—cause and effect; psychological freedom; freedom of selection; moral reason.

Chapter IV.—Standard of good and evil.

Section 1. Subjective standard.

" 2. Objective standard.

" 3. The moral ideal.

Chapter V.—Duty.

Section 1. Attributes of duty:—its absoluteness; universality; distinctness.

" 2. The ground of duty.

" 3. Classification of duties.

" 4. Recognition of duty.

Chapter VI.—Virtue.

Section 1. Attributes of virtue, and relation of virtue to duty.

" 2. Classification of virtues:—intellectual virtue; emotional virtue; virtues of will.

" 3. Moral culture:—determination; practise; patience; improvement; aspiration; special contrivances.

Religion is taught, however, far less than morals. The apotheosis of the Japanese Emperor may be regarded, if one

see fit, as a religion, but beyond such inculcation no religious teaching is permitted in the higher government schools of the Mikado's Empire. The simple worship at the Tablet of Confucius represents the extent of the Chinese instruction. In India and Australia the teaching of any religion is absolutely prohibited. Buddhism, Hinduism, Shintoism are no less included under this law than is Christianity. The English and the Colonial governments represent religious freedom. The personal religious belief of a teacher, too, has no weight in promoting or preventing his appointment or continuing the tenure of his service. If he were blatant as either a Buddhist, or agnostic, or Christian, such noisiness would probably prove what would be regarded as his unworthiness.

The American method has not, in the public schools or state universities, come to any such radical conclusion or adopted any such method. The Christian is regarded as the religion of the Commonwealth. In general a policy of conciliation between those who accept and those who do not accept its teachings is followed. The Jew, the Roman Catholic, the Protestant, and the agnostic are usually willing to seek to adjust their own doctrines to the doctrines of their brethren. For it is by the thoughtful and reverent acknowledged that the elimination of religion from a course of study, as from the personal character, represents the elimination of the highest object of apprehension and of thought, the casting out of the object most worthy of love, and the loss of one of the mightiest forces for regulating the conscience or moving the will of both the race and of the individual. It must be added that the results obtained in the higher institutions of the East do not give evidence for the adoption of their ideals and methods respecting the prohibition of religious instruction.

(5) In the education of some individuals an age is reached at which further learning seems to be comparatively ineffective in either promoting culture or enlarging power. Development is arrested. Intellectual or other growth is stopped. This phenomenon seems to be not uncommon among the black and some of the brown races of the Orient. It is seen in girls at an earlier age than in boys, and in boys twenty-two years

represent the usual limit. Teachers of the colleges of the East recognize that any attempt at further cultivation of this thin cerebral soil will prove to be useless. The conclusion is as inevitable as it is lamentable.

This conclusion should have worth for the American teacher. For the American teacher, influenced by general experience, is led to believe that all brains can be developed equally far and equally well, if only the educational period be prolonged, and patient well-doing on his part be not slackened. His purpose demands ethical commendation; but his interpretation is not rational. He should learn that a wider induction would necessitate the inference of the duty of the cessation of his efforts. It has become his sad duty to graduate his student, directing him into other paths which promise opportunities of the highest service of which he is capable.

(6) A further question has relation to a general problem. It is the problem of the college course being three years or four. Many differences are to be found in the curriculums of the several schools which differentiate the college and the university; but making largest allowance, it may be said that, with one exception, that course of study which corresponds more closely with our collegiate covers four years. The exception is in the case of Australian universities. In them the course at present is of three years; but Professor Tucker, the Dean of the undergraduate department of the University of Melbourne, tells me that a proposition is now set before the official boards of that university lengthening the course to four years. The present tendency of the higher education of the East is remote from any abbreviation.

(7) American colleges have never taken kindly to the method of an examination of their students by an authority outside of themselves. Each teacher usually examines the student he teaches. This is the method commonly followed in most parts of the world. Indian colleges form an important exception. One who knows well Indian education, W. H. Sharp, professor of philosophy in Elphinstone College, Bombay, writing of the Japanese method of examination by the teacher himself, says:

"The examining of all work by the teacher himself instead of by an outsider is opposed to English practise, but harmonizes, as I understand, with that of America. . . . The teacher, it is added, who has seen the pupil's work for months is a better judge of it than the examiner who sees it on a single occasion, and under abnormal conditions. The result being decided, not merely by the examination, but by the general character of the work done thruout the period under review, it is claimed that this method insures continuous and steady work, without either slacking or feverish bursts of cramming. It certainly makes the work of teaching much easier and pleasanter, and gives the first-rate teacher a splendid chance; he can teach just as much as he pleases of his subject, and in his own way, and has no need to work against time in order to cover a prescribed amount of ground within a limited period; and if all teachers were perfect no other method could be desired. But if we ask, whether as worked in Japan it produces the effects asserted, the absence alike of slacking and of feverish cramming, the answer can only be that in a large number of cases it does not. The proper working of the method, at any rate, postulates three things; that the teachers should be thoroly competent, that there should be plenty of them (or else individual work can not be supervised), and that they should be conscientious and impartial." [2]

The results secured in Indian schools and colleges thru examinations set and assessed by an outside authority offer no, or only slight, evidence for the adoption of the method in American institutions. For the method promotes in the student learning rather than thinking, acquisition than reflection, arbitrary and artificial attainments rather than the giving of the fundamental elements of education. In the teacher it creates a constant feeling of unrest and of uncertainty. He is inclined to consult the prejudices of the examiner and is too eager to make a high number of "passes." The method has a tendency to make the teacher a part of an examining machine, and it tempts him to lose that noblest interpretation of himself, to use Socrates' phrase, as one who is to aid souls

[2] *The educational system of Japan.* p. 418.

in finding a new birth. It promotes the artificial: it limits the personal and the real.

(8) One of the most serious and constant problems of the American college is found in the degree of supervision which should be given to students. The problem lies between two extremes: to give to each student that degree of supervision, both intellectual and ethical, which shall insure his making wise and right choices, and yet not to give him that degree of supervision which shall be a substitute for the exercise of his own judgment and for the responsibility of his own will. Too remote relationship may result in mistake or wrong in the student; too intimate does result in weakness.

The colleges and universities of the East exhibit principles and methods of practise quite as diverse as the American. Certain universities disclaim all responsibility for the personal character and conduct of students. In case the conduct of a man were to become notoriously evil and his character notoriously corrupt, notice would probably be taken by the academic authorities, and the man be asked to withdraw. The function of the university is rather, it is interpreted, to convey instruction and not to do police duty. In other universities every endeavor, formal and to a large degree personal, is made to aid students in the formation of sound character. Hostels under the immediate charge of professors, or of those who represent them, are established in most of the colleges and universities of both India and Japan. In Australia, at least in the University of Melbourne, the denominational colleges closely affiliated with the university,—the Presbyterian, Church of England, and Wesleyan,—have special concern for their students. The experience of the Eastern institutions simply confirms the conclusion of common sense that supervision should be sufficient to promote right choices but not so close as to lead to weakness.

(9) Athletic sports fill an important place in the life of all Eastern students. Such a place is usually none too large. The Eastern student lives in a climate warm, enervating. The heat and many surroundings tend toward indolence. He lacks the moral or intellectual tonic of snowbanks. The Indian student is slight: his constitution is not robust. Therefore all these

men need more of sport than does the American. Sport, too, he is inclined to take in a sober manner. It is one of the rational elements of his daily routine. Associations of the students are formed for the promotion of all sports. Tennis is probably the most popular game, tho in India cricket and football are played thruout the year. Archery is pursued more in the Japanese universities than in any country of the world. Teachers are on the whole more inclined to sympathize with all the athletic affairs of students than is the practise in American colleges,—a personal and professional function which is good alike for the teacher and the student.

(10) Whether, in the general government of a college and university, the president should be given special power, or whether a faculty should be the controlling force, the president serving as its executive, is a question discust in all the institutions of the world. It is debated at once in America and Australia. The usage is quite as diverse as are the theoretical conclusions. In the two universities of Kyoto and of Tokyo the president fills as large a place as he fills in most American universities. But in the large number of other institutions of the East he is either not found at all, or his place is subordinate and temporary. Discussions have been made from time to time regarding the installation of presidents in Australian universities; but discussion has revealed the potent fact that faculty, senate, council, deans, and honorary chancellor and vice-chancellor, are sufficient to do all those duties and to assume all those functions which might belong to a president. What is the use, it is argued, to pay a man fifteen hundred pounds to do what is now well done, and at small cost? The question of the government thru a president or thru boards comes up from time to time in all the colleges of the East, as it does emerge in the control of military and naval affairs. Whenever a president has supplanted a board, and he has himself proved to be efficient, a return to the government by a board is seldom desired. In general the tendency of reflection and of practise in the colleges of the East is toward the adoption of the American method.

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IV

THE GENIUS OF THE AMERICAN HIGH SCHOOL

America has created three conspicuous educational forms,—the American college, the practically effective technical school, and the high school: of these three, the high school is the most distinctive, and by far the most characteristic. Compared with European secondary schools,—the gymnasium, the lycée, the English grammar school,—the high school is seen to differ in four vital points: first, it constitutes the most essential stretch in a great open road educationally, which every child may tread en route to the highest educational opportunity; second, its period is the crucial four years of early adolescence; third, it is practically always co-educational; and finally it permits and encourages a peculiar measure of spontaneity and self-realization in its students. These qualities are all manifestly the product of the American spirit, as is the institution itself. No less are they indispensable to the school: without them it could not play its part in the training of the American youth. Moreover, distinct recognition of them is essential to wise deliberation concerning the organization and management of the high school, and a clear consciousness of them in the mind of the teacher makes strongly for the right tact and practise; for it must be admitted that these peculiarities of the American high school bring peculiar problems and dangers as well as peculiar advantages.

I. THE OPEN ROAD

1. *Institutionally*

Huxley on two occasions declared that the business of educational administration is to provide a ladder reaching from the gutter to the university, along which every child shall have the chance of climbing as far as he is fit to go. Few of us Ameri-

cans realize how much nearer we have come to this ideal than any other great nation either now or in the past. Today in Germany, France, England, and other European lands, the road to the university, so far from reaching down to the gutter, rarely opens to the child who stands in the doorway of a workingman's home: the German gymnasium, the French lycée, the English grammar school are not for the poor child; their doors are barred, or at least obstructed, by a tuition fee and by social discrimination. Only the very few enter these schools,—in Germany about seven per cent.; the other ninety per cent. and more enter the free public elementary school; when they have completed the eight years they are cut off from joining the march of the seven per cent. in the higher school by the fact that their elementary school training has diverged so far from the curriculum of the higher school as to fix an almost impassable gulf between them; only in the rarest cases and under the most favorable circumstances is the crossing accomplished,—as, for example, in the case of the great Paulsen of Berlin, who developed talent and uncommon ambition in his village school training, and whose parents were possest of ample means to provide all needed special assistance. For the mass of the children finishing the elementary school, even including the majority of those who show unusual talent, the way to the university is practically barred.

It would be unjust to the European systems to omit the fact that they are all striving to bridge this gap beween the common school and higher education; they recognize the terrible waste of choice natures in a system which slights ninety per cent. of the population in selecting its candidates for the higher training. The *Mittelschulen* in Germany, the *collèges communales* in France, the new scientific and other " high schools " in England, are all efforts in this direction; the same may be said of the *Realschulen* in Germany and some of the modifications in English grammar schools. But the insulated arrangement described above is the traditional plan, confirmed by a growth of centuries, and still dominates the situation; the other elements are comparatively slight and frail and have not yet struck deeply into the work of education.

The obstacles in the road to the European university are three: financial, the fee for tuition in the school leading upward; social, in that the son of the workingman is indeed not barred by law or regulation but does not feel fully at home in the "higher" schools; and finally, when the pupil has progressed some distance in the common school, a scholastic impediment, in that the lads in the higher school have got the start of him in the distinctly "secondary" studies, especially in foreign languages. The financial difficulty is of course far more serious and usually insuperable under European economic conditions, where the margin between wages and cost of necessities of life is so slight. The social bar, too, has a force which is hard for a democratic people to comprehend. The scholastic difficulty is very easily understood: the pupil in the gymnasium begins Latin at nine or ten, Greek at twelve or thirteen, and by the age of fourteen has much definite knowledge in algebra and geometry and science which the pupil finishing the common school, at the same age, lacks.

In the American high school, none of these obstacles exist. The great mass of the children advance together on the common school road, or a road closely paralleling it, such as the parochial school; at the age of fourteen or fifteen they are all abreast, and the high school offers an abundant entrance to every one who wishes to enter. It is true that many are shut out by the inability or unwillingness of their parents to support them longer; but at least the school does not increase this number by imposing a fee for tuition; instead it is tending more and more to offer additional help by providing free textbooks. As to social rank the case is no less clear: indeed, if any prejudice exists, it is more likely to be against rich than poor. Many a leader in high school affairs in athletics, in literary work and debate, in social life itself, is a young man whose parents can not find the means to buy his clothes and books and who is carrying papers or working in a store to get the needed money. Doubtless snobbery does emerge occasionally, even in a high school, and therefore let those in authority be on their guard; but it is, at least till this present, the

exceptional and abnormal, conspicuous only by its rarity and serving to accentuate the general rule of full democracy.

Respecting this great fact of the open road in education, familiarity has bred among us, not indeed contempt, but at least lack of an adequate appreciation: in truth the condition is a *sine qua non* of successful democracy. Plato, aristocrat tho he inclined to be, represents the gods themselves enjoining upon the rulers of the state the sacred duty of searching out the gifted individuals from all the children of every social rank and every degree of birth: "Therefore, inasmuch as you are all related to one another, altho your children will generally resemble their parents, yet sometimes a golden parent will produce a silver child, and a silver parent a golden child, and so on, each producing any. The rulers therefore have received this in charge first and above all from the gods, to observe nothing more closely, in their character of vigilant guardians, than the children that are born, to see which of these metals enters into the composition of their souls: and if a child be born into their class with an alloy of copper or iron, they are to have no manner of pity upon it, but giving it the value that belongs to its nature, they are to thrust it away into the class of artizans and agriculturists; and again, if among these a child be born with any admixture of gold or silver, when they have assayed it, they are to raise it either to the class of guardians or to that of auxiliaries: because there is an oracle which declares that the city shall then perish when it is guarded by iron or copper". (Plato, *Republic,* Book III, 415).

No other school system has come so near as ours to fulfilling this ideal of Plato's; and the high school is the most important factor in this task, for it attracts the gifted from the great mass in the elementary school, and it urges the gifted from among its own number onward to the university or the professional school. The value of this condition is fully seen only when we consider that the great task of higher education is to provide leadership: this is true of all so-called secondary schools, such as the higher schools of Germany, France, and England; and the extraordinary importance of the secondary school, quite out of proportion to its mere numerical

enrollment, rests upon the fact that each individual student is likely to count for far more than one in the work and welfare of the community, thru his directive influence. The peculiar qualities which mark the leader are so rare and so largely a matter of original endowment, that the state should scrutinize every child born within its pale, whether of high or low degree, to see whether he may not perchance be of the golden race. The American high school, open to all who come up thru the great universal elementary school, proffering its culture without money and without price, ought to be an effective agency for this momentous selection.

2. *Socially*

But the educational open road of the high school is also a social common highway, thronged by children from all classes of society, working side by side upon common tasks and sharing a large common life. This quality is not peculiar to the high school but belongs also to the elementary school on the one hand and to the college or university on the other. But it belongs to the genius of the American high school as contrasted with European secondary schools, and it brings to the high school the peculiar advantages and problems of such social mingling. Democracy in the school is essential to education for democracy in life: it is a constant safeguard against the extremer evils of caste, making it impossible for social classes to grow up ignorant of each other and mutually unsympathetic with one another, engendering rather an all-pervading mutual understanding and a great stock of common conceptions, standards, and ideals. The American public school, in which we may properly include all grades from kindergarten to graduate school, is the most striking embodiment and possibly the main support of the principle of equality.

No less important than the social mingling of the children is the fact that the teachers in American schools are never drawn exclusively from one caste: in an English free common school, the teachers are almost without exception of the "lower class," themselves educated mainly or wholly in board schools and normal schools attended by board school graduates. Thus

the school recreates and perpetuates the narrowness and separation of the class, engendering constantly anew the mediocrity and commonness of taste and ideal which is the inevitable tho unmerited failing of an insulated lower class. In the American school, on the other hand, of whatever grade, and especially the high school, are found teachers of every social origin, but all bound by the ties of a common education.

3. *Drawbacks*

Thus far the advantages actual or possible, of the open road from elementary to secondary schools: what of drawbacks? Perhaps the most conspicuous is the postponement of certain studies long beyond the fit time: these studies are first foreign language, usually Latin, then algebra and geometry; that all these ought to be begun before the age of fourteen is generally agreed. Possibly we should add to the list definite instructions in science as distinguished from "nature study," that is elementary botany, zoology, physics, and even chemistry.

So far as the algebra and geometry are concerned the solution seems clear and is already being worked out in many places; it is simply to teach the rudiments of both subjects in the arithmetic of the grammar grades, to the advantage not only of the future high school work, but also of the mathematical work of the elementary school itself. The simpler conceptions and processes of both algebra and geometry are well within the grasp of the grammar school pupil; indeed their very simplicity often proves an obstacle to the more mature intelligence of the high school age. The experience of England and Germany shows that the acquisition of simple algebraic and geometric knowledge more than compensates for the time it consumes by the great aid it gives in mastering the more difficult parts of the arithmetic assigned to the elementary school period. There is of course no necessity of using the terms algebra and geometry in the elementary school curriculum if that is considered undesirable: in place of arithmetic write mathematics, and then mingle the three ingredients as best suits the case.

So far as the science is concerned the case is somewhat less

clear, only because the question has been less discust and agreed upon. But there is no apparent reason why the elementary school can not take up whatever scientific work seems to be demanded by the nature and maturity of the elementary school pupil. All that is necessary is that the nature study should develop at the fit time into more definite and specialized scientific instruction. The fact is that in the case of both the mathematics and the science all that is needed is adjustment of the curriculum of the elementary school to the general needs of the pupil, and the interests of elementary school and secondary school are entirely in harmony.

With respect to the acquisition of a foreign language the case is fundamentally different. To give foreign language to all the pupils of the elementary school is out of the question and would be favored by no educational thinker; to sort out the pupils who are to proceed beyond the elementary school to high school and college is in this country, for the present at least, impossible; and even if we could sort them out we could not in general give them the special instruction they need. As things are, the vast majority of those who learn a foreign language at all pass by the age of boyhood and girlhood, which is the golden age for acquiring a language, and impose the task upon the years of early adolescence, whose true function lies in very different fields of mental life. This is a very real and very serious disadvantage in our secondary education and deserves the earnest consideration of all who interest themselves in that field.

Not a few doubt the benefit of the social mingling in our school system, both elementary and secondary. Children from good homes are said to be corrupted by contact with ill-trained and morally inferior schoolmates. This can hardly be denied; it is indeed a universal incident to all social life, and its general discussion is far too broad for this subject; the special answer for the high school, or rather for the universal public school in general, is that no system of select or segregate schools has yet been devised to escape this evil; indeed not a few so-called select schools are permeated by a far less wholesome contagion than the typical public school. In view

of all the facts and considerations it seems fair to acquit the high school of any special onus of injurious social contagion; its social mingling is then more than justified by the advantages set forth on a previous page.

But even if the school is acquitted on the charge of moral contagion, there is a somewhat subtler charge which may be made against its composite character, namely that it discourages scholarly ideals. Its members come from families of the most varied culture and ideals, including many to whom the intellectual life is unknown or even despised. Our national backwardness in scholarship and culture as compared with other great peoples is charged by some in part at least to the lack of a national secondary school whose ruling ideal is scholarship, and to the lowering of the intellectual tone of the high school by the large number of students to whom the intellectual life means nothing. This argument has naturally a peculiarly strong appeal to the advocates of classical culture, being in their eyes reënforced by the disadvantage imposed by our system upon the study of the classical languages.

It is impossible to ignore the superior scholarship of European secondary schools, especially the German gymnasium, and every friend of the American high school longs and labors for the day when it shall approach nearer to the ideal. Nor can one well doubt that the social mingling is partly responsible for our inferiority. In defence it must be maintained that the real cause is deeper than any mere school condition, resting in our general social conditions and ideals; the real hope of scholarship and culture, as of ideals in general, depends upon our outgrowing our present entirely natural yet perilous stage of intense devotion to material things. Aside from this it is a fair question to ask what would be the effect of a segregated higher secondary school on the European plan; even if it were admitted that such a school would make for higher scholarship and riper culture in those who came under its influence, there might still be doubt as to its resulting in an elevation of the intellectual and esthetic life of the nation at large.

Still another question may be raised concerning the universal

secondary school; while some urge that it discourages the formation of scholars, others maintain that it seduces many who should be mechanics or laborers into a futile attempt to be scholars, or at least to earn their bread by their wits instead of by the sweat of their brows. This has probably been true in the past, to the detriment of many individuals and of the industrial trades. There are two answers to be made on behalf of the high school: first, the result in question arises not from the openness of the high school to all comers, but from the failure in the past to broaden the curriculum of the school to do justice to the variety of its students. Second, the advent and rapid increase of manual training and industrial high schools and trade schools bid fair to provide a complete remedy.

One thing is clear in relation to all these drawbacks, real or potential, that is the call for all friends of education to devote their best wisdom and most earnest endeavor to combat them, and to raise to their highest power the countervailing advantages.

II. THE PERIOD

Taking six years as the normal age for entrance into the first grade of school, and eight years as the elementary period, we have fourteen as the age of entrance into the high school and eighteen as the age of graduation. No other great type of school has this for its period of attendance; the secondary schools of Europe cover the period from nine or ten to eighteen or twenty. In spite of this great disparity we are in the habit of using the term secondary education as tho it denoted a fixt and uniform division of the school career. The truth is that so far as the course of study and the methods of instruction and discipline are concerned, the decisive fact in the high school is just this, that it receives its pupils five years later than the traditional European "secondary" school. Nor is the full import of the difference indicated by the mere number of years; one must consider the quality and extent of transformation effected by the particular five years which thus lie between the American and European secondary periods. In other words we must see that the American high school takes the boy

and girl when they are just entering upon adolescence, when they have just received the last definite bodily gift, the power of reproduction, and are entering upon a period of extraordinary development in body and mind. The new gospel of adolescence may be read with most profit and pleasure in the pages of its great evangelist, President G. Stanley Hall,[1] and to his writings must be referred all who would equip themselves to think safely and positively upon the problems of secondary education,—with the understanding that occasionally the inspired prophet, which Dr. Hall certainly is, may carry the scientific investigator, which he of course also is, to extreme conclusions.

We must be content here barely to indicate some of the ways in which the period of the high school or of early adolescence is extraordinary; the first is, of course, bodily growth and change.[2]

1. The statistics of physical growth show a surprizing number of maximal rates of increase in the period from 14 to 18; the latest great spurt in height occurs between 15 and 16 for boys and about two years earlier for girls (tho much less marked.) Increase in weight culminates at about the same points; increase in lifting power is most rapid at 17; in vital capacity at 16. The result of all these swift advances is that the youth at 18 has a man's body, at least when excessive indoor life and hypercivilized regimen have not checked and enfeebled his bodily health and growth, as unfortunately they too often do in the case of city children.

These maxima are the incidents of the great fundamental transformations from neuter gender child to male and female; if this were merely a physical change it would be fraught with deepest consequences in educational regimen, but the greater change is the psychical and spiritual, as all know whose memory of their own pubertal life is not faded and who have

[1] Fortunately for those who are forbidden by lack of time or other limitation, to read his monumental *Adolescence*, he has now published the most important educational parts of the large work in a small single volume, entitled *Youth* (Appleton, $1.50).

[2] On all these questions see Hall, *Adolescence*, I., Chs. I, II, III; especially p. 7, 8, 97, and 133.

watched with insight the transformation in others. The educational problem of this transformation is just beginning to be stated; what *katharsis* and *prophylaxis* should be provided by school and home is one of the most vital questions confronting the civilized world.

2. Intellectually the change is from the predominance of sense perception and the accumulation of mental images to the predominance of the organizing process. True the very earliest acquisitions of sensory images involve some organization, otherwise the images would not be retained, at least in any definitely reproducible form; but whereas then the new image was the important part and the organization subsidiary, now the image is usually not new, and when it is new, the important matter is its place and function in the mental system. The inner world now has bulk and scope enough to be very active in the reception of all incoming ideas; in other words apperception has enormously increased in proportion to perception. Moreover the process of inner apperception is coming to take an important place; that is, there is much mental activity which goes on for considerable stretches of time without any aid from perception; the materials already stored up in the memory (taken in the broadest sense) act and react upon each other, producing great and permanent changes in their own arrangement and organization.

The educational inference from all this is the need of the scientific element in the studies of the period; scientific not in our peculiar English sense of natural science, but in the true and broad sense of all organized and systematized knowledge and thought. Negatively we infer that studies which are merely or mainly acquisitive of new ideas or images are unsuitable; the bearing of this upon the acquiring of foreign languages is an interesting question which we hope to discuss more fully elsewhere.

3. Even more marked than the intellectual change is the moral: the will of the adolescent differs from that of the child in form and in content; the new content includes first the complex and powerful impulses springing from the new sex character; only the repressive power of conventional propriety

prevents these elements from being recognized as determinative data of the volitional development of this period.[3]

Our present purpose is confined to listing this as one of the conspicuous facts of the high school period, as that in which these impulses sweep in upon the soul for the first time. Nor could anything be more false and pernicious than to think of these impulses as being merely or even mainly physical; probably, if the truth were known, the sex emotion of early adolescence is often far purer and more spiritual than that of later periods. At any rate early adolescence is the normal period for the dawn of true inter-sexual love, and there is no doubt that the youth and maiden almost without exception experience the emotion definitely and powerfully for the first time between the ages of fourteen and eighteen.

The second great new element in the content of the will is the economic impulse and interest; only a mere fraction of the pubertal youth sit in school and college rooms: the great majority are earning their living and laying the foundations of their economic careers; they are already in the grip of the material struggle for existence and are largely dominated by the thoughts and feelings and will movements created by the daily work. The boy who happens to attend the high school is not organically different from the clerk or apprentice of equal age in this respect; who has not known high school boys who would not consent to be supported longer by their parents, but by laborious days and nights earned their own bread as it were with one hand, while with the other they did their school work? Not seldom this impulse to "make money" drags the lad bodily out of the school and into work for wages.

These two great changes in content are only a part of the general enlargement and broadening of the mental content which furnishes the subject-matter of the will; along with them comes an enlarged survey of the whole world, material, social, political, spiritual, and above all a further recognition

[3] We regret that Hall's great chapter on sexual development in *Adolescence* is not represented at all in the abridgement, *Youth;* serious students of the question who use the latter book should consult the larger work at least on this topic.

of one's own individuality and one's relation to others,—in other words, a new social conception.

The peculiar form of the adolescent will is its far look into the future; truly has Longfellow said, "The thoughts of youth are long, long thoughts." Love, labor, his place in the community both social and economic, lead naturally out into dreams, plans, glowing imaginations of a life career. Along with this comes a new sense of personality, including both rights and duties; a new sense of maturity and of looking with level eyes into the faces of men and women,—feelings which after all are the only stuff out of which a full-grown human spirit can ever be made. We are dealing verily with the dawn of the real and permanent character.

In all these ways and in the totality of character of which these are but elements, the pubertal period is sharply distinguished from the pre-pubertal and from later adolescence and maturity. There can be no doubt that both instruction and discipline for this age should be other than for the preceding period of the elementary school. We wish to point out here the peculiar opportunity offered by our high school to discover and practise the true curriculum and the true method for these fateful years of early adolescence. In the high school there are no little children; in the English grammar school and the German gymnasium there are,—boys of nine or ten, or even eight. The very presence of these as an integral part of the institution tends to make both instruction and control take on a form unfitted to the older pupils; and an examination of the actual schools, at least of the Gymnasia, will show that the tendency realizes itself. The English secondary school has partly saved itself from the same result by its tradition of investing the older lads with a larger degree of liberty in their own conduct and of authority over the younger pupils.

Of the unique importance of the high school period in the determination of character we have spoken at some length elsewhere;[4] but no opportunity should be omitted to call attention to this tremendous educational fact. Now are formed moral habits, as opposed to the mere mechanical and bodily

[4] "The high school's cure of souls," EDUCATIONAL REVIEW, April, 1908.

habits that are largely fixt in infancy and childhood; now principles and ideals are settling into their places of authority, hardly to be dislodged or superseded in later life; and above all now is the fit time for the bright and high beginning of the mental portrayal and adoption of a life purpose. The supreme privilege of secondary education, and especially of our own high school, is to lay hands of power upon these processes and so upon the very character and destiny of the race and nation. Have our high schools risen to their possibilities in this respect?

Over against the potential advantages of a separate school for early adolescence must be set some possible drawbacks. Some points mentioned under the head of "The Open Road" might come equally well here. The chief accusation made definitely against the separate four-year high school, however, is that of breaking the continuity of the intellectual training. The pupil in the European secondary school spends nine or ten years in the one institution, constantly under the same general educative influences, and so receives deep and lasting impressions and a fixt intellectual habit. The American high school teacher often finds himself moved to complain that the pupils who come to him with the guarantee of the grammar school lack the power to study and have neither intellectual power nor stores of needed information. No less does the college repine at the unfitness of the high school graduate for strong mental work. Admitting that these complaints are well founded in general, if often exaggerated, it is still unsafe to charge the weakness they complain of to the separate high school, for the simple reason that every grade from the primary up is wont to make similar charges against the grade below it. The fact is, we must rather admit with sorrow that lack of thoroness is the most widespread defect of the intellectual work of our American schools, confined to no grade or section, but affecting the whole system from kindergarten to college and university. The true remedy for these difficulties is not an attack upon the period of the high school, but rather first a humble and earnest effort to put more stamina and efficiency into our teaching and learning, and second to coördinate more thoroly

the aims and efforts of elementary school, high school, and college.

Aside from all this there may be serious question whether we have found exactly the best period for the high school: a few years ago much was heard about a six-year high school, with various theories as to the adjustment of the changed period to the length of elementary school on the one hand and college on the other. It is true that in both sexes puberty begins on the average some time before entrance to the high school. It is a question whether eighth and ninth grade are not nearer together than either ninth and tenth or tenth and eleventh; also whether the fourth year student in the high school is not much nearer to the college freshman than the sophomore is to the junior. This question is so important that it can only be mentioned here, with the hope that it may be treated more fully elsewhere.

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V

A CO-EDUCATIONAL MEDITATION

The Professor's thoughts were straying again, and he realized that when he got home he was going to add one more to the already long list of failures to give his wife an intelligent account of the sermon over the dinner table.

Not that the Professor was wilfully inattentive, nor that he was in the least inclined toward irreverence. Quite the contrary: he was really a worshiper. When he went to church Sunday morning, it was because his soul thirsted for the living God, and he was genuinely desirous of communion with his Creator; and in the main he accomplished his purpose.

In the main, I say—for it sometimes seemed to the Professor that there was an extraordinary variety of circumstances connected with the service of his church which, whether so intended or not, were admirably suited to keep a wistful soul from enjoying the deep things of God. Try as he would, he could not keep from being distracted, not to say disgusted and outraged, by the whispering and giggling of the choir up there in front of him, or by its conscious glances at the congregation. The low-toned or whispered gossip of his neighbors, too, often prolonged into the very service, was a smoke in his nose, and he could not be oblivious of the fact that the prayer—it was an evangelical church—was often a rhetorical exercise rather than a real petition. He even wondered sometimes whether he would not do better for his individual soul by going out for a quiet hour among the trees on the hill, or on the rocks at the shore, instead of to church. That God was *there* he knew from experience—he had seen Him in the clouds, and had felt Him in the wind.

But the Professor recognized that he was not the only person concerned. He had enlisted in the army of the church,

and knew that the rank and file ought to keep step, and he was doing the best he could. To be sure, he sometimes doubted that any goodness or service which was not spontaneous and unaffected really counted with either God or men; but, true to a principle inbred in him by long listening to sermon and precept in his youthful days, in this case of doubt, as in others, he chose the alternative which promised him the greater measure of unhappiness. He couldn't get over his childhood impression that, other things being equal, the pleasantest thing was also the most sinful. And besides, he knew perfectly well that he that observed the wind should not sow, and he that regarded the clouds should not reap. So he dutifully went to service three times each Sunday, converting his one day of mental recreation into a day of nervous strain. This may have been one reason why his calendar showed a considerable number of Blue Mondays.

The really worshipful part of the service, indeed, he enjoyed; but however excellent the sermon, and however great the good-will he brought to it, he was not always master enough of himself to follow it to the end. His thoughts *would* wander. It was *so* easy for a fragmentary thought from the pulpit to lodge in his mind and jog his mental machinery into pernicious activity. Or some chance circumstance in his environment, or sentiment in the hymn, afforded a fruitful suggestion, and before he knew it, all his good resolutions had gone for naught, and he was oblivious of preacher and congregation, busily employed in pursuing—or rather following—a train of thought all his own.

Why his own mental wanderings were so much more interesting than the pastor's, the Professor was not wholly sure. Perhaps it was because they were his own. Perhaps—he thought of the teachings of his childhood in the little country church—perhaps it was one of the devices of an ingenious Devil. Again, perhaps—he often felt that this was the best explanation—it was because these vagrant thoughts of his were spontaneous and natural, not curbed and confined to a beaten path in the strenuous effort to prove something—usually something which to the unprejudiced and unsophisticated

mind seemed altogether contrary to reason; for reasonable things required no proof—at least none that was not easily followed. The process thru which his own thoughts went involved no distortion of innocent material, no attempt to make the lesser reason appear the greater. Their ways were ways of pleasantness, and all their paths were peace.

Perhaps it was due to the season—it was the week after Easter, and you know what the Easter season means at church—but this particular morning the Professor's thoughts were even more vagrant than usual. Circumstance and sermon alike—the text was Isaiah iii. 12: *And women rule over them*—seemed to have conspired to make him guilty of flagrant inattention. The eternal feminine—his thoughts would be induced to consider nothing else, and insisted in going about it in their own way.

As he had taken his place, he had been reminded of the long ago when he used to creep into and submerge his small self among waving grain and grass, or tall poppies. Pulpit, choir, and congregation alike were screened from his vision; everything but the ceiling. When he leaned forward to get his hymnal, paper blossoms and creepers tickled his nose; when he reclined again, his back hair was ruffled by other specimens of horticultural ingenuity; and only by maintaining the strictest equilibrium could he keep clear of incumbrance to right and left.

He tried to look about him. When he had first taken his seat, it was difficult enough; but by the time the sermon began, it was almost hopeless. He ought to have known that Easter hats, like German professors, took advantage of the Akademisches Viertel. Nevertheless, by dint of judicious craning, he managed after a while to get his vision thru the testudo-like formation of the prevailing style of headdress, and to see a lone man four seats ahead, sitting with shoulders contracted and head slightly drooping, circumspect and apologetic. One or two others he saw to right and left, in the same attitude and trying to look unconcerned; but it was safe to say that nine out of ten persons present were women and girls.

The Professor reflected that what was true of his own con-

gregation was true also of the other congregations of the city, of the county, of the state, of the United States, of North America, and of the whole world. (You may see in the Professor's method of thought the influence of his pastor's method of prayer.) To be sure, he had heard pastors boast of the number of men in their congregations, but not even the most unblushing boaster had ever claimed more than fifty per cent., and as for himself, he had never been able to count more than one man to two women. He remembered the prominent part played by women in the Epistles, and in early Christian times in general, and reflected that much the same proportion must have been true of the early Christian congregations. Whatever might be said to the contrary, he could not escape the conclusion that, so far as formal worship was concerned, religion was a feminine thing.

But that was not all. Not only were six out of seven of the average congregation women, but even the male remnant was less masculine in quality than the ordinary male member of society. The Professor lookt at the few specimens visible to him, and scrutinized himself as well. Had they not all pale and smooth skins, soft and delicate hands, and gentle and unobtrusive ways? He lookt in vain for the coarse, bronzed, and weatherbeaten faces of the children of toil and hardship, or even of the sturdier animal types among other classes. In the country where he had been brought up it had been the same: the gray-haired fathers in Israel had not been the vigorous red-blooded types of the community, filled with strong impulse and appetite, but the mild and quiet, and frequently weaker, sort. Good men they were, and above reproach. The Professor would never have thought of calling them effeminate, nor did he think of his present fellow-worshipers as effeminate. He wisht all men were more like them—gentle and considerate, unassuming, patient, charitable, of noble aspirations—but still they were more like good women than like the average man of the community.

The Professor's thoughts next turned to the preachers he had listened to. He could remember few of them who were vigorous masculine types. Their virtues, as a rule, were many:

they were pure, noble, and self-sacrificing, and the breath of criticism was stopped before them. Yet how many of them he had heard referred to as effeminate! In some cases, to be sure, the Professor thought the employment of the word justified, and would indeed have preferred the charge himself. If the term was not meant for men who were slight and delicate, smooth-shaven and soft-skinned, with cultivated grace of hand and wrist, and with mincing step, who were drest in gownlike coats, gleaming linen, and white tie, exhaled faint perfumes, wore wisps of hair carefully arranged over the forehead, mingled tears and honey in their voices, addrest omnipotent God as "dear," "sweet," "loving," and filled their sermons with diction of the same character—for whom, in the name of Adam, thought the Professor with some impatience, *was* it designed? But they were exceptions, and rare. To their saner and more perfectly poised brethren he would never have thought of applying the term. . . . And yet, here again were men who were more like good women than like the average man. Their character, their sentiment, and to some degree their very dress, reflected the feminine character of their congregations.

In some churches, too, the Professor reflected, there was even greater similarity between the vesture of women and that of ministrant. He thought of surpliced choirs, of the laced robes of priest and acolyte, of the monkish costume, of rich altar appointment, of all the attention paid to detail in the adornment of sanctuary and ceremonial. Surely here again was manifest the spirit of the eternal feminine.

Yes . . . but what of it, after all? Was he to think of it as a reproach to religion that its followers were characterized on the whole by feminine rather than by masculine qualities? He knew that many did, and that they felt a shade of contempt for the church. Was there really something wrong about it? or was it rather all right, and as it was intended by the Great Intelligence?

The Professor's logic set itself to work—or rather went off on a little tour to see what it might find for its recreation. Yes, much in the outward form of religion was feminine; and

the same was true of its content. The virtues taught by religion were those naturally belonging to women rather than to men. Religion *was* essentially a feminine thing. Pastors, other things being equal, were more religious than laymen, and more virtuous; and also more feminine. Laymen, other things being equal, were more religious than non-church-members, and more virtuous; and also more feminine. The greater the progress of human society, then, the nearer its approach to the feminine. Ergo, when the millennium should arrive, it would see all human beings feminized.

The Professor was somewhat taken aback by the conclusion to which his logic so swiftly led him, and was at first disposed to protest. He reflected, however, that to be feminized meant neither to be resexed, nor unsexed, nor necessarily to be made effeminate, and felt reassured: to be feminine was one thing, to be effeminate quite another. For all mankind to become gentle, loving, and self-sacrificing, to rid itself of the stains of sordid ambition and to stand forth clad in the shining garments of charity and purity—was surely nothing to dread. Did not indeed his own daily prayer include an earnest petition that he might possess these very virtues?

But was the basis of his logic right? Was it really true that religion was essentially feminine in character? The Professor thought of the poetry and art which clung to religion: of the elaborate ceremonial of ritualistic churches, of the hardly less effort of his own church to secure the effect of ritual without laying itself open to the charge of employing it. He thought of the music, painting, sculpture, architecture, and poetry which had come into being in response to the impulse of religion, whether from within or from without.

All these things, it was true, might be only the husk of religion; but the kernel itself was poetry, too. Did not the essentially poetic quality of religion manifest itself in a score of ways—in the diction of sermon and prayer, in the form and content of hymns, in the processional and the communion, in all the symbols employed to manifest Deity to the sense, in the mystic sentiment of the worshiper, in his loyalty to the ideal and the unseen, in his repudiation of the visible and practical?

To be sure, he had heard preachers declare that religion was the most logical and reasonable thing in the world; but he knew, and knew that they knew, that as logic and reason are ordinarily conceived of, they had little to do with religion, which was concerned with faith, or, in other words, was more a matter of temperament than of calculation. The conclusion of the philosopher that "religion was poetry become the guide of life" seemed to him a good one, if rightly understood.

Yes, religion was essentially poetic—poetic in content, and poetic in expression. Its content had to do with the ideal, and overrode logic and reality; and its forms of expression were the products of the esthetic instinct. And poetry and art were feminine rather than masculine in quality. Were not the Mediterranean nations, especially Greece and the Latin countries, often spoken of as representing the feminine in civilization? Their fame was based rather on sculpture, painting, architecture, and literature than on their achievements in grim-visaged war and the science of the purely practical. The same nations were the most faithful daughters of religion. The essentially feminine qualities in them which had impelled them to develop art and poetry and religion kept them in an appreciative attitude toward the products of their genius.

So art and poetry were closely allied to religion, and all were indwelt by the same spirit—the spirit of the feminine. Women rather than men liked them, and fostered them. It might be that men were often the makers and innovators, but the product was feminine, after all. The masculine spirit might contribute the energy and the logic necessary to execution; but it was the feminine spirit which gave the poet and the artist the intuitive perception which was the really indispensable element in artistic creation; they themselves were little more than instruments. Had not a famous anthropologist mistaken the skull of Raphael for that of a woman? "Gentle" Virgil, "gentle" Sophocles, "gentle" and "sweetest" Shakespeare, "fancy's child,"—were not poets best remembered for qualities usually possest by women? Had not Milton been called the lady of Christ's? The friendships of poets and artists, too—were not friendships with

women prominent among them? How many collections of letters by literary men had the Professor seen, among which the most attractive compositions were addrest to women.

Culture in general, too, was feminine. Men were essentially but brutes engaged in the unpoetic practicalities of life which centered about the struggle for existence; while women, much less enthralled by the selfish passions begotten in the struggle, were cultivating the finer perceptions. The Professor thought of the college of his town. Remove from it the students of the liberal arts, especially literature and the languages, and you removed from it all the women, but few men. There were twenty women to five men in every subject avowedly cultural; the so-called practical subjects were elected by men only.

Then the Professor's thoughts passed by easy transition to the larger College of Life—the community round about him. Men belonged to the Elks, the Masons, the Woodmen, etc., and employed their leisure moments in meeting to smoke and drink together, tell stories, and play cards or billiards. Women spent their spare moments—and many which they could not spare—in Women's Clubs, Art Associations, or in laborious fancy work; and when they adopted a profession, it was usually teaching. There were nine women to every man on the instructional forces of the primary and secondary schools of the Professor's city.

There was a great deal of talk about segregation of the sexes in education (you may know by this that the Professor did not live in the East); but what the Professor saw was segregation already, in reality. College men and women chose few studies in common; the effect of co-education was social rather than intellectual or economic. But the tendency toward segregation was not limited to education alone. Men were becoming more and more immersed in the practical and were less and less attracted by the cultural phases of life. Women were gravitating the other way, and with a greater rapidity than ever before in history. For until comparatively recent times the tendency toward separation had been held in check by woman's lack of freedom; but now that womankind was

emancipated, with the privileges of the world open to it, and encouragement was added to opportunity, what was to be the result?

The Professor again became a prey to alarm. Here were church and college contributing to an ever widening breach between the sexes. Whether men were less inclined toward culture and religion or not, women were surely progressing more rapidly in both than ever before. The feminine part of society was studying cultural subjects in college, and in church was listening to exhortations on the feminine virtues; the masculine element was going to schools of commerce and engineering and law on week-days, and anywhere else than to church on Sundays; whereas if society was not to be disrupted, men ought to be studying literature and art and listening to sermons on lovingkindness and spirituality, and women ought to be mingling in the current of practical life and acquiring the masculine virtues (if there were any such: the Professor had been so well trained by his religion in the art of self-depreciation that he was sure *he* had none, even had Mrs. Professor not confirmed him in the conviction).

He had an inspiration. Why not reverse the order of things, and lessen the breach? Why not cheat segregation of its prey by turning the tables on it, and having female congregations listen to sermons on self-reliance, fortitude, and honor, and forcing men to sit under exhortations to tenderness, charity, mercy, lovingkindness, self-denial, etc.? Why not put women to school to learn business and engineering, and men to learn art, literature, domestic science, and fancywork? As it was, only those who were whole were under the care of the physician; while they that were sick were growing worse and worse. By encouraging on the one hand hardihood and vigor and animal selfishness a little, and on the other hand the softer virtues, women might be made more masculine and men more feminine, and the sexes be got together, unity preserved, and race suicide averted.

But the Professor's instincts told him immediately that this would never do. You couldn't drive out Nature with a pitchfork in that way. Affairs would have to go on in the old

manner. He was something of a philosopher, and knew enough about the processes of civilization to realize that it wouldn't do to worry overmuch about ways of hastening them, or of hindering them.

And besides, what sense in trying to hinder civilization in this case? The Professor's logic asked the privilege of another trial. For civilization really meant the only progress worth while—unless all human effort was being misplaced, and all human theory was wrong, and every one was pursuing false ideals; and that was unthinkable. If history meant anything, it was that civilization was forward-marching: the thoughts of men were widened with the process of the suns. Furthermore, it was equally certain that civilization meant the growth of the virtues: and the virtues were feminine. It might be that many conceived of railroad engines, ocean liners, skyscrapers, and dynamos as the standard by which to measure the progress of civilization; but the Professor knew better. He knew that civilization was to be measured rather by the degree of safety, happiness, and refined enjoyment of which the individual was assured. There was one thing by which above all others progress was to be measured—virtue—and this was intimately connected with religion and poetry and art, all of which were concerned with the ideal rather than the real, with the feminine rather than the masculine.

In other words, the advance of civilization meant the advance of idealism—that is, the advance of the illogical and the impractical, which men agreed were feminine qualities. For what virtue was either logical or practical? What logic or practicality was there in a strong man's being merciful to a weak man in his power? or in keeping his hands from that which was not his own? or in obeying the dictates of that wonderful product of civilization, the conscience? The virtues were anything but practical; they were always interfering with success. Conscience was forever making cowards of those who might be wealthy or powerful, did they not heed it. And still, here were the virtues, in actual existence, a growth of Nature, flowers strangely sprung from the soil of barbarism, a triumph of the impractical over the practical! When all was

said and done, it was neither conquest nor commerce which constituted the claim of the nations to honorable mention in history—but the fostering of religion, the production of Homers and Shakespeares and Tennysons, the erection of Parthenons, the painting of pictures, the carving of statues.

So if civilization meant religion and the arts, and religion and the arts were essentially feminine, and the march of progress meant the feminizing of society, the Professor was, after all, prepared to look upon the tendencies of his time with a fair degree of faith and equanimity. It was the way of Nature, and he would abide by it.

He did indeed feel some slight anxiety concerning the gravitation of the sexes away from each other; but even this disappeared after more mature consideration. For neither were sermon and lecture so fruitful that all who heard them were transformed into children of light, nor were the benefits of culture or the deep things of God limited to those only who attended church and received university degrees.

But even were all women, instead of comparatively few, rapidly becoming cultured and spiritualized, and even were a still greater number of men neglecting to avail themselves of the opportunities of college and church, the Professor felt no apprehension as to the final event; for he reflected that ever since Adam followed the mother of mankind to the forbidden tree and Orpheus descended to hell for Eurydice, the one principle which was as constant as the northern star,

> Of whose true-fixed and resting quality
> There was no fellow in the firmament,

was that wherever women went men were at some time sure to follow.

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VI

NIETZSCHE'S EDUCATIONAL IDEAS AND IDEALS [1]

I shall consider today neither the facts of Nietzsche's life nor the nature of his philosophy taken as a whole; familiarity with both is presupposed. All I can hope to do, and that only in a general way, is to develop for you Nietzsche's ideas on education, using that term in a rather narrow sense.

Permit me to answer first of all this question that must have occurred to most of you: What possible connection can there be between Nietzsche and the Renaissance—the period of history in which we are particularly interested? At first blush there seems to be none. Was not Nietzsche one of the most modern of philosophers? In point of time, certainly. He died as late as 1900. In many other respects, too, his philosophy is that of a man of the latter half of the nineteenth century. Yet, on the other hand, from more than one point of view Nietzsche's is essentially a Renaissance type of mind. According to Burckhardt—Nietzsche's colleague at Basel, who doubtless influenced him markedly—the most outstanding thing about the Renaissance is that it discovered, rediscovered man. To be sure, even today the term is still often considered as referring only to the new interest in the classics, but that is confusing the Renaissance with the Revival of Learning. The expressions, it should be remembered, are not synonymous. The former includes the latter. Classical learning at no time vanished completely. As Owen says, "the epoch no doubt is a revival, but rather from debility and helplessness than from absolute lifelessness. There is really no period of Mediæval History in which traces of Pagan culture are not discernible." The Revival of Learning simply indicates a newly acquired apperception by the men of that period

[1] Read at Clark University, March, 1908, before Professor Burnham's Seminar in Education.

for things quite meaningless for their immediate predecessors. Truly, this revival played no small part in man's awakened interest in himself so characteristic of the period, but there were besides the liberty to think and speak as one pleased, the freedom of faith and science that enthralled the new generation of Italians and, as if by contagion, spread over the greater part of Europe. Nietzsche asserts that the Italian Renaissance contained all the positive forces to which we owe our modern culture, forces such as freedom of thought, enthusiasm for science, liberation of the individual, a burning love of truth, and a corresponding detestation of pretense, all combining to make it the golden age of the last ten centuries.

This pushing man himself to the front, making him the focus of all thought, of all endeavor, so characteristic of the Renaissance immediately suggests Nietzsche. Count Pico della Mirandola in his famous discourse on the *Dignity of man* (1468) causes the Almighty to address Adam as follows: "'I have made thee neither celestial nor terrestial, neither mortal nor immortal, in order that you may chisel yourself and educate yourself into whatever image and being you please. You can degenerate to the beast—you can ascend to God.'" Is it not as if we hear Nietzsche? Raise man to the overman is his slogan, his gospel. Not the cosmos is his chief concern but the microcosmus. For Nietzsche as for the Renaissance man is the beginning, the end, the measure of all things. Man is the heart of the universe.

According to Wundt this period of new birth was dominated by two ideas, one directed outward the other inward, disparate, you see, yet supplementing each other. On the one hand, overcome with wonder by the wide expanse their vision rapidly acquired, as new worlds, in more senses than one, were laid open before their gaze, men came to a point where nothing seemed too marvelous to conceive; nothing too marvelous to believe. Something very like this we see in the sweep of Nietzsche's imagination as he conjures up before us species beyond species. Nor does the parallel fail when we compare Nietzsche's conception of things with the second controlling idea attributed by Wundt to the Renaissance—the idea that by

its own *lux naturalis* the microcosm relates itself to the macrocosm.

Another peculiarity of the Renaissance is that the period was too rich in ideas to develop a systematic view of the world. Could anything be more true of Nietzsche? Legions of ideas surged thru his mind, ideas harmonious and discordant, rational and irrational, just and unjust, all of which he scattered about with spendthrifty hand, recking not whether or no they could be combined into any well-ordered whole.

The manner, too, in which not a few writers of the period in question speak of things good and holy, so esteemed at least by many, comes to the surface again in Nietzsche. There was in the leaders of the Renaissance movement a sort of over-individuation that reminds one of Nietzsche's *Herrenmoral;* there was a "revaluation of all values"; there were masters and there were slaves with, only too often, morals to match.

Finally, if the revived interest in classical learning is not all there is to the Renaissance, it unquestionably is one of its most challenging features. This devotion to the classics was hardly less developed in Nietzsche, at least during his earlier years. From his youth he worshiped at the shrine of Greece; and when he went to Basel at the beginning of his career, it was to teach the lore of the ancients.

In a word, Nietzsche beyond a doubt belongs in the *milieu* of the Renaissance. His homocentricism, his individualism, his enthusiasm, his devotion to the humanities, his manner, the fertility of his genius—all combine to make him one of the coryphæi of the Renaissance who appears on the stage just as the curtain apparently is about to fall. Indeed, he has been called "the last of the humanists," the *Vollender* of the Renaissance. The Renaissance proper, we are told, liberated man only from his scientific, industrial, and religious bondage, but he did not break away from a system of ethics in which man instead of being at the center was at the periphery. Thus far, it is asserted, men have been moral not for their own sake but for morality's sake. In transmuting all values and in assigning man his proper place, Nietzsche is declared to have done an immortal service to mankind.

This is going too far. Who shall say that we have definitively past into a new epoch? Pater said of Winckelmann that "he is the last fruit of the Renaissance." Yet now precisely the same is said of Nietzsche. To pronounce Nietzsche the consummator of the Renaissance is as rash as it is safe to assign him a place in that period.

The purpose of this paper is to discuss not so much the import of Nietzsche's later philosophy for education but rather to consider, in the main at least, the writings of his first period; and that because it is only during this period that Nietzsche interested himself in education in the more restricted sense. To this time belong the lectures: *Ueber die Zukunft unserer Bildungsanstalten.* These lectures are of direct interest to every student of education. Nietzsche deserves to be heard if for no other reason than because of his unquestioned talents as an inspirer of young men.

As we have seen, Nietzsche's philosophy centers about man. Later it is the overman, but during his first period Nietzsche's thought focuses on the "genius." He recognizes two sorts of genius which combine to form *the* genius, one apollynic or logical, intellectual; the other dionysian or practical, artistic. The former is the herald of the latter; science leads to art. Nietzsche's genius is a being in whom we find indissolubly united both philosopher and artist of whom, however, the artist—to use a biological expresssion—is "dominant," the philosopher "recessive." He is to be valued above a whole state, above an entire kingdom. He transforms the masses, revaluates values, yes, even his errors are to be prized far above the truths of little men. By this last Nietzsche doubtless means what Frederic Harrison in his *Philosophy of common sense* words rather better, when, in speaking of great men, he says: "Their very failures are more illuminating than the accepted truisms of lesser men."

We must not confound Nietzsche's genius with his overman. The one led to the other, but the genius is not yet a new species beyond man. He is merely the greatest of men. The overman is an evolutional product differing in kind from man; the genius is similar in kind but different in degree. In

a word, Nietzsche's genius is the exact opposite of his *Bildungsphilister*. He despises utilitarianism, magnifies all that is difficult, ideal, tragic. He separates himself from the herd, refuses to be influenced by others, turns against the culture of his day. He is hard, unbending, uncompromisingly honest. Realizing the tragedy of existence he is necessarily a pessimist, but one whose pessimism leaves him no rest. He knows no resignation, but battles ever the more the greater the odds may be. He is productive, not a poverty-stricken compiler, an unthinking imitator, but original, "the apex of the intellectual pyramid," as Nietzsche himself would phrase it. He is a man of powerful instincts and dares obey them as does later the overman. The ability to put one's self into an esthetic mood not the mere possession of memory, intelligence, observational powers, and the like, is the criterion of genius. The emotional and volitional powers must be strongly developed, the intellect is secondary.

In so far as the genius is philosopher Nietzsche's interest in him centers not so much in what he says as in who he is. A man's philosophy can hold Nietzsche only in so far as it reflects his personality. Genuine artist-philosophers were the pre-Socratics. These men were geniuses, not intellectualists like Socrates, Plato, Aristotle, and the rest. The pre-Socratics reflected the Greek spirit in its pristine purity as did Homer, Æschylus, Pindar, and Phidias. For them the cosmos is a work of art, and in essence, if not in form, they were poets as all philosophers should be. Greatest of these ancient poet-philosophers was Heraclitus. His counterpart among the moderns is Schopenhauer. Schopenhauer is a true philosophic genius, being both artist and philosopher. As opposed to Kant Schopenhauer is a poet, as opposed to Goethe he is a philosopher. He has style. His judgments have a classic originality. He recreates what had become *banal*. He is the philosopher of a classic rejuvenescence, of a regenerated Germany. He is the truest of all philosophers. "For Schopenhauer," notice the significance of the sentence, "philosophy is an impetuous instinct."

Such is the genius. To develop him a people should leave

no stone unturned. We must cultivate the masses, saturate them with this ideal, teach them to love this ideal. But, you object, love can not be taught. So it can not, consequently we must set up an image of the genius in the hearts of the people so that, contemplating him, they may learn to adore him. This brings Nietzsche to the question: Is the education of today of such a nature as to comply with this requirement? Far from it. The cultural ideal of the present is the philistine and our educational program is arranged accordingly. Instead of trying to cultivate the real genius we produce the scholar, the theoretical man, the man who is out of touch with life and whose interests are limited to mere abstractions. There is a fever for mere erudition that produces none other than the *Bildungsphilister* who believes himself a true son of the Muses but is not even a bastard. He is a mere negative personality who can create nothing, who can only look askance at the real creator, the real artist, as a hyper-sensitive, diseased being. He has a voracious appetite for facts, facts, facts, and more facts, until he is so overwhelmed and surfeited with facts that even he can not digest them. For him even religion passes out of the domain of feeling and becomes a matter of intellectual concern.

Take, as an example, history. How is it taught? Altho it does not at all lend itself to that purpose it is converted into a science, better said, a pseudo-science. You will remember that one of Nietzsche's *Inopportune reflections* is devoted to a study of the uses and drawbacks of history. I have considered it in another place and shall not repeat myself excepting to say that Nietzsche does not deny the value of history for mankind today. "Assuredly," he says, "we need history, but we need it for life and for deeds and for nothing else." Too much history spells a fivefold danger. First, it endangers personality by accentuating the difference between externals and internals. Man is led into an attitude in which he does not sense things naturally, but turns to history to learn how he should feel. Thus he becomes an actor, life becomes a masquerade, he becomes dishonest. Under the influence of history man has become hypocritical, so that he now appears other than he is.

Man is converted into a walking encyclopedia whose fit title would be " Handbook of inner culture for outward barbarians." Secondly, overmuch history leads people to fancy that they possess to a greater degree than their forbears the saving grace of righteousness—a grievous error. Thirdly, the same evil disturbs the instincts of the masses interfering with the maturation of both the individual and the group. History exposes everything in its utter nakedness, whereas religion, and all life in fact, needs to be seen as thru a glass darkly. Fourthly, an excess of history awakens the conviction that we are mere epigoni. Hardly a greater misfortune could come to our youth than to be saturated with history just because they are made to despair of ever doing anything themselves. Fifthly and finally, too much history makes men cynical.

Against all these dangers Nietzsche knows but two antidotes. First of all we must learn to forget, to be *Unhistorisch,* which is the source of happiness. He who can not forget knows not how to make either himself or anybody else happy. The second antidote is *das Ueberhistorische,* the turning one's gaze from all becoming to that which is permanent—religion and art.

Leaving history and coming to the arts, we find that music takes first place in Nietzsche's estimation; this because it underlies all mythology which in turn underlies all culture, the myth being the basis of every creative activity. That our own day creates no myths is, therefore, only natural considering that the age is purely intellectual, hence non-creative. If we wish to renew our culture, we must return to the myth. Since only music can help us here its significance is obvious. Just as Attic tragedy sprang from music and myth so will it be with modern culture.

We may note in passing that all music does not lead to myth-making nor do all myths owe their origin to music. Nietzsche simply begs the question. He proves nothing. That the two often go together is not astonishing since both spring from the emotions, but that there is a fixed relation between them of cause and effect Nietzsche nowhere proves; that our present age is hardly mythopœic will not be disputed, but how-

ever we may value myths and myth-makers, few would be prepared to discard our present state of mind, which is inimical to myth-making, for one that would favor their birth.

But to return to Nietzsche's indictment. Having scored the scholar for resting content in the bonds of history, Nietzsche turns to science. "It would be a great misunderstanding," he says, "if a person should adduce German science by way of objection to me, and, besides, it would be a proof that he had not read a word of my writings. For seventeen years I have not tired of showing the *intellectually enervating* influence of our modern scientific pursuits. . . . There is nothing from which our civilization suffers *more* than from the superfluity of presumptuous hodmen and fragmental humanities; our universities are, against their will, the real forcing houses for this mode of stunted growth of intellectual instincts." Such education breeds the philistine who does his day's work, provides for his wife and children, and lives his life without the remotest conception of the storm and stress of the genius. Never shall he enter into Nietzsche's Utopia.

Nay, our day does not foster the development of the genius. It is antagonistic to him. It clips his wings before they are grown. It blinds him before his eyes have opened. Barefaced, grasping utilitarianism has laid hold of our educational systems and converted our institutions into mere training schools that equip men for lucrative positions. Education that does not promise much in financial returns is discouraged. "In all higher education in Germany," says Nietzsche, "the main thing has been lost: the *end,* as well as the *means* for reaching it. That education, *culture,* itself, is the end—and *not* 'the Empire'; that for this end there is need of *educators*—*not* public-school teachers and university scholars: that has been forgotten. . . . What the 'higher schools' of Germany actually realize, is a brutal training in order that, with the least possible loss of time, an immense number of young men may be fitted to be used, *used up,* as government officials. 'Higher education' and *immense numbers*—that is a contradiction in principle. All higher education belongs to the exceptions only. . . . And everywhere there is an unbecom-

ing haste, as if something were wrong when the young man of twenty-three is not yet 'finished.'"

Dr. Reddie of Abbotsholme, England, speaks as if in Nietzsche's name when, after his racy fashion, he says of English public schools: "No longer places of leisure—without which true education is impossible—they have become steam-driven factories for turning out by the dozen hastily crammed candidates for examinations."

Even the study of the classics has fallen to a utilitarian plane, complains Nietzsche. "Classical culture!" he exclaims. "What does one see! A thing that serves only to procure release from military service and a doctorate!" The study of the classics has degenerated to *Kleinkram*. Mountains are made of mole-hills. One devotes himself to tracing out the inconsistencies of Homer while another spends a lifetime in counting the verses of Greek and Roman poets, rejoicing in the beatific proportion 7 : 13 :: 14 : 26. As for the educational literature of today, nothing could be worse. It is purely pedantic. If you would not lose your head, avoid this maze of mazes where everybody dances in a circle. It is the pedagogs who breed that vampire of culture—the specialist. Our universities are turning out men who know one thing and one thing only. Such a man is but one step removed from the factory worker who his life long does nothing but turn screws. In Germany especially, says Nietzsche, we pride ourselves upon our specialists, a pride which should be converted into shame.

Nietzsche does not deny that we must learn some things merely to live, to maintain ourselves in the struggle for existence. Hence he does not, for example, attack the *Realschule*. He has only praise for those institutions that teach the proper casting of accounts, the modern languages of commerce, the sciences, etc., but all this has nothing to do with culture. The two may not, must not be confused. Culture soars leagues and leagues above this nether sphere. She is a goddess who, far from doing menial service, must herself be served. Education that ends in a profession of some sort, however essential and praiseworthy, is never cultural. And so it is not the *Realschule* that Nietzsche attacks but it is the gymnasium, the

supposed stronghold of culture. It is upon the gymnasium, the strategic center, that Nietzsche focuses his fire. The gymnasium is undermined with intellectualism. It professes to give above all things a thoro training in the classics. But does it? Nietzsche declares he finds nothing deserving the name. The students of the gymnasia never penetrate into the heart of Greek culture; at best they manage to scratch the surface. Be honest with yourself, urges Nietzsche; what did you get out of your Homer and Sophocles? You may have got a measure of enjoyment out of Homer, but not nearly so much as out of a good modern novel; you may have obtained a degree of pleasure out of some Greek drama, but nothing as compared with an up-to-date play like Freytag's *Journalisten*. However, do not reproach yourself. The blame is none of yours. If you did not find the home of antique culture neither, for that matter, did your masters. Indeed, just here lies the source of the whole trouble. How are you to find entrance into the temple of the ancients when those who guide you, or profess to guide you, are blind in both eyes? Did they only realize their blindness, but being blind they think they see. You are taught to stammer when you should speak, to philosophize when you should listen.

When it comes to the mother-tongue conditions are no better, thinks Nietzsche. Instead of teaching pupils to master the vernacular practically we find a scholastic-historical treatment, as if the language were something dead. The study of the German masterpieces, which should introduce the student to our splendid classical heritage, degenerates into dry verbal dissection.

Such is Nietzsche's indictment and, however overdrawn it may be, one winces occasionally as he places his finger, none too tenderly, upon some sore spot. But if things are so bad and if Nietzsche is a pessimist, then doubtless he concludes that we might as well resign ourselves and our progress to the inevitable. What motive is there for further struggle? But resignation is a word foreign to Nietzsche's vocabulary. Elsewhere I have shown that tho during his first period Nietzsche stands in Schopenhauer's constellation, nevertheless

from the first Nietzsche is active where Schopenhauer is passive. True enough, everything in the educational world is as bad as it is in the world at large, but being an idealist Nietzsche knows no despair. The time to rejoice has come. Brighter prospects lie before us. We have come to the parting of the ways. If we see our institutions for culture in the throes of death, all the better, a resurrection, a Renaissance, a new birth will give us something the like of which the sun has not yet seen.

How, then, must we proceed in cultivating the genius? Nietzsche is not blind to the fact that we can not deliberately separate our children into geniuses and non-geniuses. "By their fruit ye shall know them." We must educate the many, not for their own sake, but solely for the sake of the few, just as the experimental botanist sows thousands of seeds, tho caring only for those plants growing from them that reveal the characteristics he seeks. It is for the rare genius who springs from the herd that Nietzsche plans his educational system. The genius sets the pace. Those who can not keep up must fall by the way. It is hardly necessary to remark that in Nietzsche's scheme the intellect does not hold first place. Mere knowledge, as we have seen, finds no favor with him. His ideal is the *vollebendige Mensch,* the man who stands in the midst of life, who seeks guidance within himself and not from the musty tomes of history, who is a law unto himself and who, in order that he may run freely, casts from him the intolerable incubus of vain erudition. Learning, if it is to be worthy of its name, must ever stand in the service of life; whatever is to the contrary is anathema. Learning for learning's sake is an abomination.

How, then, we ask once more, must we proceed in educating for culture? Thus: First of all, do not disturb youth's *rapport* with nature. He must understand the language of field and of forest, of the silent midnight watches as well as of the madly careering storm, of the little wayside flower as well as of the giant oak,—he must understand them all however different the language they speak; he must see himself in all nature reflected as from some limpid tarn. Succeeding in

this he will of his own accord, in the complete absence of scholastic adjuncts, learn to feel the metaphysical unity that underlies all nature.

It is clear that Nietzsche like Pestalozzi, Herder, Jean Paul, Rousseau, and others before him, is a *Gefühlspädagog*. The feelings and not the intellect reign supreme. There must be no restrictions, no principles that can interfere with absolute freedom of growth, nothing imitative. Especially must the pupils be guarded against the notion that there are no more worlds to conquer. Hence, there must be little history teaching, and that most guardedly.

But how can such a program be followed in a modern community? It can not, as Nietzsche perceives clearly enough, and so, like educators of note before him, he urges isolation. If exposed to the ordinary environment the ideal master can not hinder his pupils from being warped by false principles.

Apparently such an education would be almost purely negative. At the very most, it would seem, the educator could do no more than remove such barriers as hinder development. He could inculcate nothing. I say apparently, for Nietzsche himself does not draw this conclusion. We should err were we to infer that in Nietzsche's ideal state there are to be no schools, but that instead the youth of the land is to be permitted to grow up wild. No, with all possible freedom as regards bald formulas and scientific systems, there is to be the restriction that genius imposes upon itself. There will be real schools tho wholly unlike those of the present. In the first place there will be but few such institutions as compared with today. Not only is the possible number of geniuses small but even the mass from which they are to issue forth, the mass that is at all promising, is relatively small. Here we have at once a direct and tremendously important factor in promoting genuine education. As we have seen again and again geniuses are rare. Yet the true teacher is always a genius. What follows? Nothing else than that with the enormous number of schools now maintained by the state the vast majority of teachers can not be geniuses, can not be teachers meriting the name. Consequently, if we reduce by so many the number of

our schools and at the same time eliminate the teachers who are least fit, we strengthen by so much the quality of the teaching.

As Weber reminds us, Nietzsche's pedagogic ideal is anti-social, but not as yet anti-democratic. Aristocrat Nietzsche is, but his is a spiritual aristocracy, not one of caste. Here we find another point of contact with the Renaissance, at least as it manifested itself in Italy. Brandi remarks that Italy at this period was controlled less by birth or rank than by talent and force.

One can not help but be imprest by the utter vagueness of Nietzsche's constructive ideas. For this there is some excuse. In all Nietzsche delivered five lectures under the caption, *Ueber die Zukunft unserer Bildungsanstalten,* but as originally planned there were to have been six. Unfortunately, owing to circumstances, the last lecture of the series was never delivered. I say unfortunately because it was precisely this sixth lecture which was to set forth Nietzsche's own notions of educational methodology. We have, however, some preliminary notes on the missing section, and if we may reason from them, we see that when it came to outlining an educational scheme of his own Nietzsche was totally at a loss. Denunciation he had found easy. He always excelled in that. But when his turn came to build he was struck with ideational paralysis.

If we inquire into the significance of Nietzsche's educational program we must say that the most outstanding fact is that in so far as he contributes anything of value to education it is largely negative. Nietzsche loved to philosophize with the hammer. His mission was to destroy, not to fulfil; to raze, not to build. Take the genius which represents the positive, the constructive side of his educational philosophy, is he not only a degree less fantastic than the overman? Nevertheless, we should not overlook certain things in this genius which it would be well for us to take to heart. Nietzsche's emphasis of the right of each individual to his own personality is something for which he deserves credit, especially in these days of socialistic propaganda. His is a wholesome attack, too, upon the so-called lockstep in our schools, and upon the idea that

a college education as such will of itself be the making of a man. We can not so much as make scholars of all men, much less geniuses.

If Nietzsche's attack upon the specialist does not fall entirely within Queensbury rules it serves to call attention to the dangers of over-specialization for culture. Is culture not rather too rare a thing among university men bred for research? You say that depends upon what one means by the word culture. What is culture? We all know what culture is, and yet, somehow, it is not so very easily defined. There is something elusive about it that escapes the dictionary-makers. I like Dr. Creighton's suggestive definition, which reads thus: "Culture," says the bishop in his lecture on *The early Renaissance in England,* "after all means an attitude towards life, and the attitude exprest by Hellenic thought was one of clear outlook upon the world, frank acceptance of things as they were, and resoluteness in clothing them with beautiful form." With this definition in mind one thinks of the specialist who has so long limited himself to his own little circumscribed field till finally "a clear outlook upon the world" is quite impossible. How many an investigator can see things only thru his own peculiarly tinted spectacles and can no more see things as they are than he can see a bacillus with the unaided eye. As for clothing things with a beautiful form, look at his publications. And what is true of the scientist is ten times more true of the metaphysician. For the metaphysician to be lucid is to be superficial. Even our own James can not break away from stereotyped phrases with impunity. Specialization is necessary. To question this is to reveal purblind ignorance of the way in which the world's work is being done today; but it remains true that culture and learning are not synonymous, and that the one is worth striving for as well as the other.

Again, is there not in reality an appalling lot of scientific *Kleinkram?* Follow the output of our presses, especially the periodicals; notice the months, the years, a lifetime almost in some instances spent in solving or attempting to solve some little problem of only microscopic significance whose solution

may mean an added footnote in some textbook; notice how article after article is practically buried in the bound volumes of our scientific journals; notice this, and see if you can at all times escape the question whether after all the game is worth the candle.

Of course, there is another side to all this. Progress is gradual, rarely by leaps and bounds. Rome was not built in a day. It is not the rule but the exception that an instrument already highly developed as, for example, our compound microscope, is at a single stroke advanced one hundred per cent. in efficiency. But, Nietzsche would say, the ultra-violet microscope is the work of genius, not of your ordinary scientific plodder. Doubtless, too, most scholars should rest content if they may add a single stone to the temple of science and not envy the genius his greater productiveness. All this does not alter the fact that many a man who might have made a first-rate farmer has been educated into a tenth-rate scholar. If I understand Nietzsche, it is against this that he militates.

Possibly we are not above learning something from Nietzsche's essay on history, to turn to that for a moment. Are we not all familiar with, have not most of us suffered from a sort of history teaching that actually does have somewhat of the paralyzing effect described by Nietzsche? Who has forgotten the deadening task of memorizing dates, of learning lists of battles, presidents, dynasties, what not? And who does not remember the limitless glorification of the past compared with which we did seem to be mere *sons* of the Revolution? Only the remedy for this is not to break with the past, as Nietzsche would have us, but to change the method of approach. Is it not a most hazardous proceeding to teach our youth to obey their instincts independently of the experience of the race? Yet it is for just this that Nietzsche pleads.

Possibly, too, Nietzsche deserves some credit, if I may broach so threadbare a subject, for his championship of the classics. Undoubtedly the significance of the classics for culture has been enormously overestimated, but the tendency today is not in that direction. As students of the Renaissance we can never forget the world's debt to Greece and Rome, a

debt that can never be repaid. How marvelous a transformation did their literatures work in this one period alone. We read in the able article on the Renaissance in the ninth edition of the *Encyclopædia Britannica* that "the rediscovery of the classic past restored the confidence in their own faculties to men striving after spiritual freedom; revealed the continuity of history and the identity of human nature in spite of diverse creeds and differing customs; held up for emulation masterworks of literature, philosophy, and art; provoked inquiry; shattered the narrow mental barriers imposed by medieval orthodoxy." One who knows and remembers this does not sneer at the classics, even tho he would assign them the humblest place in the curriculum.

Admitting all this, the fact remains that Nietzsche's educational ideal is wholly impracticable and, what is more, undesirable. The main purpose of education never has been, excepting possibly during the Renaissance, and never ought to be the production of the rare genius. The main purpose of education should be the uplifting of the masses. A noble tree can not grow on poor soil. The cultural rank of a nation is never determined by some few individuals but by the level of the common people. Progress can not come by aiming solely at the production of genius. The masses would degenerate into a mob, which would in its fall inevitably carry its geniuses with it. Greece and Rome and other cultural nations now nonexistent or decaying did not die out because of the lack of some few great men, but because the leaders found none worthy to follow. No more than water rises above its source, no more can the culture of a nation be permanently raised by a handful of men above that of the level of the people. The very value of the true genius is that he always strives not to accentuate the distance between himself and the people, but in that he seeks to lift them to his own level.

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VII

THE INFLUENCE OF THE NUMBER OF MEN TEACHERS UPON THE ENROLLMENT OF BOYS IN PUBLIC HIGH SCHOOLS

It always is, or should be, interesting to put speculations about education to the test of facts. The result often is, or should be, a warning to us against the intellectual crime of giving mere opinions where indolence is our only excuse for failing to verify them.

In the present article I propose to seek light on the very common opinion that the ratio of boys to girls in high schools, and in particular in the later grades of high schools, can be largely increased by increasing the percentage of men teachers in these schools.

The first question of fact which will be answered is: "Do the high schools which, while roughly alike in other respects, differ greatly in the proportion of male teachers, show corresponding differences in the proportion of male students?" The data used will be the statistics of public high schools in the 1906 Report of the U. S. Commissioner of Education. To get groups roughly alike, I omit, of course, schools for boys only or for girls only, manual training high schools, even tho a few girls may be enrolled, and also, to avoid the possible admixture (thru error) of teachers whose work is really in the elementary schools, all schools reported as having fewer than six secondary teachers. Further I keep separate the schools of each size, tho in the summaries reported in the tables this separation is abandoned to save space and add to clearness.

I shall in general measure the proportion of boys among the students indirectly by the percentage which the girls enrolled are of the boys, as this saves much computation.

Table 1 shows the nature of the data used and the calculations made by one sample.

TABLE 1.—Sample of the data and calculations in the case of the relation of the proportion of male teachers to the proportion of male students in public high schools. Twelve-teacher schools.

School.	Number of male teachers.	Number of female teachers.	Percentage of male teachers.	Number of male students.	Number of female students.	Percentage which the number of female students is of the number of male students.
1	1	11	8.3	128	210	164
2	2	10	16.7	167	162	97
3	3	9	25	165	171	
4	3	9		111	110	
			Sums	= 276	281	102
5	4	8	33.3	93	132	
6	4	8		137	153	
7	4	8		146	179	
8	4	8		121	215	
9	4	8		100	145	
10	4	8		133	162	
11	4	8		130	238	
			Sums	= 860	1224	142
12	5	7	41.7	125	152	
13	5	7		104	137	
14	5	7		119	154	
15	5	7		145	138	
16	5	7		124	134	
17	5	7		80	98	
18	5	7		113	128	
19	5	7		126	187	
20	5	7		109	147	
21	5	7		129	243	
			Sums	=1174	1518	129
22	6	6	50	123	200	
23	6	6		98	116	
24	6	6		100	143	
25	6	6		165	176	
26	6	6		96	172	
27	6	6		115	118	
			Sums	= 697	925	133
28	7	5	58.3	147	164	
29	7	5		172	215	
			Sums	= 319	379	119
30	9	3	75	172	215	125

TABLE 2.—The relation of the sex balance of the staff to the sex balance of the student enrollment in public high schools of from 6 to 16 teachers.

Number of male teachers.	Number of female teachers.	Number of male students.	Number of female students.	Number of female students divided by number of male students (×100).	Per cents of male teachers.	Corresponding per cents which female students are of male students.	Per cents of male teachers.	Corresponding per cents which female students are of male students.
0	11	125	178	142	0	158	0–35	143
0	8	72	133	185				
0	7	113	159	141				
0	6	271	450	166				
1	12	171	213	125	8–17	146	36–40	142
1	11	128	210	164			41–91	140
1	10							
1	9	100	118	118				
1	8	829	1355	163				
1	7	1158	1626	140				
2	14	309	519	168				
2	13	177	241	136				
1	6	1690	2403	142				
2	12	399	559	140				
2	11	414	755	182	17–24	145		
1	5	2741	3942	144				
2	10	167	162	97				
2	9	963	1338	139				
3	13	538	843	157				
2	8	1046	1635	156				
3	12	516	629	122				
3	11	682	967	145				
2	7	1633	2364	145				
3	10	1242	1756	141				
2	6	1968	2863	145	25–29	143.5		
3	9	276	281	102				
4	12	162	291	180				
4	11	638	1045	164				
3	8	945	1489	158				
2	5	2870	3974	138				
4	10	897	1155	129				
3	7	2129	2893	136	30–35	140.5		
4	9	314	351	112				
5	11	209	221	106				
2	4	6130	8735	142				
3	6	1564	2358	151				
4	8	860	1224	142				
5	10	342	396	116				
5	9	396	591	149				
4	7	2098	2780	133	36–40	142		
3	5	3101	4656	150				
6	10	1094	1474	135				
5	8	465	615	132				
4	6	858	1269	148				
6	9	177	260	147				
5	7	1174	1518	129	41–49	141		
3	4	3558	5174	145				
6	8	298	425	143				
7	9	286	407	142				
4	5	1827	2794	153				
5	6	1396	1911	137				

TABLE 2.—*Continued.*

Number of male teachers.	Number of female teachers.	Number of male students.	Number of female students.	Number of female students divided by number of male students (×100).	Per cents of male teachers.	Corresponding per cents which female students are of male students.	Per cents of male teachers.	Corresponding per cents which female students are of male students.
6	7	1048	1313	125				
7	8	681	934	137				
8	8				50	141		
7	7	421	610	145				
6	6	697	925	133				
5	5	673	956	142				
4	4	1608	2393	149				
3	3	3367	4683	139				
8	7	193	234	121	53–59	136		
7	6	330	476	144				
6	5	907	1217	134				
5	4	840	1225	146				
9	7							
8	6	114	148	130				
4	3	1652	2237	135				
7	5	319	379	119				
9	6							
6	4	499	792	159	60–91	137		
8	5							
10	6							
5	3	523	756	140				
7	4							
9	5							
10	5							
8	4							
6	3	217	239	110				
4	2	1274	1761	138				
11	5							
9	4							
7	3							
10	4							
5	2	377	514	136				
8	3							
11	4							
12	4							
9	3	172	215	125				
6	2	229	268	117				
10	3							
7	2							
11	3							
12	3							
8	2							
13	3							
9	2							
10	2							
5	1	213	270	127				
10	1	78	78	100				

Table 2 summarizes the facts from schools with from six to sixteen teachers, inclusive.

Table 2 shows that there is only a very, very slight direct relation between the proportion of male teachers and the proportion of male students. With the 184,000 students recorded, the percentage of boys is less than 4 per cent. more amongst the 84,607 in schools with from 40 per cent. to 91 per cent. of men teachers than amongst the 81,527 in schools with from 0 per cent. to 35 per cent. The very few schools with no men teachers at all and those with over half of the staff men show decided differences, but the numbers are too small to be used as reliable evidence. Schools with from 30 to 50 per cent. of men teachers show no change in the percentage of boys. The general drift of the relation is such as may be exprest as follows. The central tendency is to have 3 out of 8 teachers men and to have 142 girls for every 100 boys enrolled. For 33 1-3 per cent. increase in the proportion of male teachers, one finds an increase of less than 1 per cent. in the proportion of male students; for 66 2-3 per cent. increase in the former proportion, one finds an increase of 2 per cent. in the latter; and for an increase of 100 per cent. in the former, an increase of 4 or 5 per cent. in the latter. Where the former proportion is halved the proportion of male students drops only about 1 per cent. and where it is reduced to a third, the drop in the latter is less than 2 per cent.

I have also computed the facts in the case of the 42 schools of 13 or more teachers (in 1906) having a percentage of male teachers of 24 or under and the 41 such schools having a percentage of male teachers of 47 or over. Altho on the average the latter group have two and a half times as high a percentage of male teachers, they have a percentage of male students hardly any higher and a percentage of male graduates which is decidedly *lower* than is found in the schools with few men teachers. The facts are:

	Schools with from 11 to 24 per cent. of male teachers	Schools with from 47 to 65 per cent. of male teachers
Number of male students	9,117	9,210
Number of female students	12,687	12,667
Number of male graduates	986	746
Number of female graduates	1,480	1,444
Per cent of male students	42 —	42 +
Per cent of male graduates	40	34

Evidently the influence of the proportion of male teachers upon the proportion of male students, even when combined with whatever unreasoning tendency there is for school boards to provide a larger share of men teachers when the enrollment consists largely of boys and with the tendency of certain communities to look with disfavor on the feminization of both the teaching profession and the school population, is very slight.

Its influence upon the proportion of each sex remaining thru the high school might still, however, be demonstrable. The fact here could be best ascertained by a calculation of the correlation between the percentage of male teachers and a rather complex ratio, namely $\frac{\frac{B_4}{B_1}}{\frac{G_4}{G_1}}$ in which B_4 equals the enrollment of boys in the fourth year of high school, B_1 the enrollment of boys in the first year of high school, G_4 the enrollment of girls in the fourth year of high school, G_1 the enrollment of girls in the first year of high school. The calculation of this ratio for each school or group of schools with the same percentage of male teachers would, however, be a very laborious procedure and could at the best be done in the case of only the small proportion of schools which report enrollment by grades in the 1907 Report of the U. S. Bureau of Education. I have, therefore, taken a somewhat less significant but more easily and more widely available measure, namely the ratio which the male graduates are of the total graduates, using the data of the 1906 Report of the U. S. Commissioner of Education.

I shall then answer this second question of fact: "Do the high schools which differ greatly in the proportion of male teachers show corresponding differences in the proportion of male graduates?"

Table 3 summarizes the facts concerning this relationship. Of the 9,782 graduates in schools with from 0 to 33 1-3 per cent. of their teachers men nearly 37 per cent. are boys, and of the 9,421 graduates in schools with from 35.7 to 91 pe-

cent. of their teachers men almost exactly 37 per cent. The difference is one-third of one per cent. The proportion of male teachers thus makes even less difference in the proportion of male graduates than in the proportion of male students as a whole. It appears, then, that the influence which made the slight correlation between the sex ratio of the staff and that of the student body was not in the main the attractiveness of men teachers to boys. For, in so far as it was that, the relation should be closer for graduates upon whom the supposed attractive force would have acted from one-half to three and a half years longer.

The schools reported in Table 3 are not identical with those reported in Table 2, since (1) the number of graduates is less often recorded in the Report of the U. S. Comm. of Education, and (2) the labor of calculation was somewhat lightened by omitting at random a fourth of the schools of from six to eleven teachers.

These facts are adequate to prove that in the medium-sized public high schools of the country the proportion of boys who go to or who stay thru high school is almost or wholly irrespective of the percentage of men on the staff of the school. But since there is an independent body of evidence available which is interesting from other points of view as well as our present one, I shall present it also. This evidence is the change for each school in the percentage of male teachers in recent years taken in connection with the change for each school (1) in the percentage of male students and (2) in the percentage of male graduates. We may, that is, get the answer to the question: "To what extent have the schools which have been most feminized in their staffs been also most feminized in their student body and in their body of graduates?" I shall use first the reports of 1896 and 1906 for the co-educational public high schools (excluding evening high schools) in cities where there is one general high school of from 12 or more teachers (in 1906) in answering it.

The quantities whose relationships are to be measured are three ratios for each school:

I. The ratio of the change in the number of men teachers

TABLE 3.—The relation of the sex balance of the staff to the sex balance of the graduates (for 1906) in public high schools of from 6 to 16 teachers.

Number of male teachers.	Number of female teachers.	Number of male graduates.	Number of female graduates.	Number of female graduates divided by number of male graduates (×100).	Per cents of male teachers.	Corresponding per cents which female graduates are of male graduates.	Per cents of male teachers.	Corresponding per cents which female graduates are of male graduates.
0	11	7	15	214	0	212	0–33.3	173–
0	8	6	11	183				
0	7	7	9	129				
0	6	28	67	239			35.7–91	171+
1	12	15	19	127	8–17	169		
1	11	10	36	360				
1	10							
1	9	10	15	150				
1	8	56	114	204				
1	7	94	181	193				
2	14	41	52	127				
2	13	23	35	152				
1	6	185	282	152				
2	12	44	75	171				
2	11	40	80	200	17–24	180		
1	5	332	573	173				
2	10	12	13	108				
2	9	87	159	183				
3	13	52	96	185				
2	8	97	212	208				
3	12	45	79	176				
3	11	87	139	160				
2	7	156	282	181				
3	10	180	243	135	23–29	174		
2	6	169	351	208				
3	9	49	46	94				
4	12	18	27	150				
4	11	61	123	202				
3	8	52	101	194				
2	5	277	521	188				
4	10	95	153	161				
3	7	202	350	173	30–35	166		
4	9	21	58	276				
5	11	27	35	130				
2	4	704	1168	166				
3	6	169	292	173				
4	8	103	138	134				
5	10	27	44	116				
5	9	43	69	161				
4	7	225	427	190	36–40	180		
3	5	334	681	204				
6	10	147	189	129				
5	8	60	103	172				
4	6	95	153	161				
6	9	15	23	163				
5	7	119	217	182	41–49	176		
3	4	392	729	186				
6	8	40	47	117				
7	9	25	29	116				
4	5	157	317	202				
5	6	160	245	153				

TABLE 3.—*Continued.*

Number of male teachers.	Number of female teachers.	Number of male graduates.	Number of female graduates.	Number of female graduates divided by number of male graduates (×100).	Per cents of male teachers.	Corresponding per cents which female graduates are of male graduates.	Per cents of male teachers.	Corresponding per cents which female graduates are of male graduates.
6	7	85	108	127				
7	8	57	124	218				
8	8				50	162		
7	7	21	38	181				
6	6	61	99	162				
5	5	49	90	184				
4	4	178	314	176				
3	3	426	650	153				
8	7	11	24	218	53–59	161		
7	6	37	53	143				
6	5	69	127	184				
5	4	96	129	134				
9	7							
8	6	11	16	145				
4	3	181	309	171				
7	5	23	31	135				
9	6							
6	4	51	109	214	60–91	171		
8	5							
10	6							
5	3	55	115	209				
7	4							
9	5							
10	5							
8	4							
6	3	21	21	100				
4	2	142	235	166				
11	5							
9	4							
7	3							
10	4							
5	2	28	44	157				
8	3							
11	4							
12	4							
9	3							
6	2	23	33	143				
10	3							
7	2							
11	3							
12	3							
8	2							
13	3							
9	2							
10	2							
5	1	28	48	171				
10	1	7	2	29				

to the change in the number of women teachers, the changes being measured by percentile increments.

II. The ratio of the change in the number of male students to the change in the number of female students, the changes being measured by percentile increments.

III. The ratio of the change in the number of male graduates to the change in the number of female graduates, the changes being measured by percentile increments.

These somewhat complex verbal descriptions represent, of course, the following arithmetical expressions:

$$\text{I.}\ \frac{\text{M. T. '06.}}{\text{M. T. '96.}} \Big/ \frac{\text{F. T. '06.}}{\text{F. T. '96.}} \qquad \text{II.}\ \frac{\text{M. S. '06.}}{\text{M. S. '96.}} \Big/ \frac{\text{F. S. '06.}}{\text{F. S. '96.}} \qquad \text{III.}\ \frac{\text{M. G. '06.}}{\text{M. G. '96.}} \Big/ \frac{\text{F. G. '06.}}{\text{F. G. '96.}}$$

In which M. T., M. S., and M. G. stand for Male Teachers, Male Students, and Male Graduates respectively, and F. T., F. S., and F. G. stand for Female Teachers, Female Students, and Female Graduates.

The 204 schools examined show an enormous range of difference in the feminization of the staffs—from a case where 8 men and 2 women have been replaced by 7 men and 10 women (that is, a ratio of .11) to a case where 1 man and 15 women have been replaced by 15 men and 16 women (that is, a ratio of 14.10). The central tendency is to a change of 88 per cent. as much in men as in women.

The range of difference in the feminization [1] of the student body is of course less, but is still large, roughly from a ratio of .60 to one of 2.00.

The exact relation between the changes in staff and the changes in the student body is not clear in spite of the fact that the data include (for 1906) over 100,000 students. The facts are summarized in Table 4. In general it is clear from them that the addition of men teachers has made very little difference, and very likely none at all, in the proportion of male students. The same, but to a less degree, is true in the case of the relation between changes in the sex balance of the

[1] In these large schools the boys increased somewhat more than did the girls during the ten years in question. The country over, the girls increased about one per cent more.

TABLE 4.—Relation of changes in the sex balance of the staffs of public high schools to changes in the sex balance of the student body. In 204 large high schools.

Change in sex balance of the teaching staff: $\frac{\text{M.T.'06}}{\text{M.T.'96}} \div \frac{\text{F.T.'06}}{\text{F.T.'96}}$	Change in sex balance of the student body: $\frac{\text{M.S.'06}}{\text{M.S.'96}} \div \frac{\text{F.S.'06}}{\text{F.S.'96}}$	Number of students, in 1906, involved in the computation.
0– .29	1.16	3209
.30– .49	1.04	4985
.50– .69	1.07	21393
.70– .89	.975	21272
.90–1.09	1.10	18895
1.10–1.29	1.18	11566
1.30–1.49	1.04	7222
1.50–1.69	1.115	6815
1.70–1.99	1.10	5119
2.00 and over	1.23	10653
Under .70	1.08	29587
1.30 and over	1.115	29799
0– .70	1.08	
.70–1.29	1.06	
1.30–1.99	1.08	
2.00 and over	1.23	

TABLE 5.—The relation of changes in the sex balance of the staffs of public high schools to changes in the sex balance of their graduates. In 204 large high schools.

Change in sex balance of the teaching staff: $\frac{\text{M.T.'06}}{\text{M.T.'96}} \div \frac{\text{F.T.'06}}{\text{F.T.'96}}$	Change in sex balance of the graduates: $\frac{\text{M.G.'06}}{\text{M.G.'96}} \div \frac{\text{F.G.'06}}{\text{F.G.'96}}$	Number of graduates, in 1906, involved in the comparison.
0– .29	1.07	453
.30– .49	.89	609
.50– .69	.96	2321
.70– .89	1.00	2483
.90–1.09	1.18	1584
1.10–1.29	1.41	1193
1.30–1.49	1.33	745
1.50–1.69	1.28	740
1.70–1.99	1.53	622
2.00 and over	.925	976
Under .70	.96	3383
1.30 and over	1.22	3083
0– .70	.96	
.70–1.29	1.135	
1.30–1.99	1.36	
2.00 and over	.925	

staff and changes in the sex balance of the graduates. The facts are summarized in Table 5.

The work of calculation of these relationships is so excessively tedious, especially for small schools, that I have not attempted to measure the fact in enough more schools to make the determinations final and precise within, say, 1 per cent. But I have supplemented the calculations for the similar schools which had 10 or 11 teachers in 1906, for 50 schools (taken at random) which had 6 teachers in 1896, and for 33 schools in Massachusetts which had 4, 5, or 6 teachers in 1896. The facts in these cases are summarized in Table 6.

TABLE 6.—The relation of changes in the sex balance of the staff to changes in the sex balance of the student body and graduates. Summary of additional data.

	$\frac{\text{M.T.'06}}{\text{M.T.'96}} \div \frac{\text{F.T.'06}}{\text{F.T.'96}}$	$\frac{\text{M.S.'06}}{\text{M.S.'96}} \div \frac{\text{F.S.'06}}{\text{F.S.'96}}$	$\frac{\text{M.G.'06}}{\text{M.G.'96}} \div \frac{\text{F.G.'06}}{\text{F.G.'96}}$
Schools of 10 and 11 teachers in '06.	0– .95	.97	1.02
	.96–∞	1.10	1.215
Schools of 6 teachers in '96.	0– .70	.91	.93
	.70– .99	1.13	.81
	1.00–1.49	1.085	1.055
	1.50–∞	1.08	1.12
Massachusetts schools of 4, 5 or 6 teachers in '96.	0– .99	1.05	.85
	1.00–∞	1.05	.77

Taking all these facts together, it seems safe to say that in these larger schools changes of staff exprest by the ratios .50 and 2.00 (for instance, a change from 5 men and 5 women to 5 men and 10 women or from 5 men and 5 women to 10 men and 5 women) are not accompanied by corresponding changes in the student body of much more than 5 minus or plus (for instance, from 100 boys and 100 girls to 100 boys and 105 girls and to 105 boys and 100 girls).

In the case of the graduates the figures for similar changes in staff would be perhaps 7 plus or minus.

The possible influence of men teachers in attracting boys and holding them thru the high school course, the possible influence of a habit of letting the sex balance of a school count as a reason for choosing a new teacher from one sex rather than the other, the influence of the addition of studies specialized for the sexes (such as manual training and domestic science) which, so far, are taught almost exclusively *by* the same sex that they are taught *to,* and other similar influences, have not all together been strong enough to account for more than a small fraction of the very great changes in the sex balance of these high schools. The influence first named must certainly have been very slight, for the one last named is real and must have been the cause of part of the slight correlation found.

The measurements made are perhaps even more interesting from other points of view than that of the attempt to verify or refute the opinion that replacing women teachers by men would help largely to turn the sex balance in our secondary schools.

As the author has in several instances shown, the variability of our schools, cities, states, and institutions in respect to different features of educational work is very instructive. It is in the present case. Taking such high schools as are in each case the only public secondary schools in the city or town and should do, therefore, the general work of secondary education for the community, we find that for medium-sized and large schools the percentage of male teachers varies from 0 to 75 and over. Are the extremes justifiable, each really adapted to the special needs of that community, or are they due to ignorance and caprice? We find that some schools have only half as high a percentage of boys as do others. Is this because the boys in these communities need education less, or because poverty debars boys from school so much more than girls, or because of an unwise administration of the school? If poverty does debar boys in excess, ought it to? We find that from '96 to '06 some cities have vastly increased the proportion of women on their high school staffs while others have vastly increased the proportion of men. Were both right because of local needs? Which group was right? Were perhaps both groups wrong?

We are not, at present, able to judge the worth of the feminization of secondary and higher education from its results. There is an intellectual difficulty in the absence of facts and an emotional difficulty in the presence of prejudices. But we could in part judge it by its relations—by what it goes with. And since a student of education who has got the ability to measure variable relationships commonly has had sufficient scientific experience to elevate him above conventional prejudices, this method might well be more impartially used than the direct method. The following questions can all be answered by energy and care: How do the most feminized and the most rapidly being feminized schools stand, in comparison with their opposites (in both present condition and recent progress), with respect to cost per pupil, number of teachers per hundred pupils, per cent. of population enrolled, course of study, laboratory, library, and technical equipment, and other symptoms of efficiency? How do the communities in which they are stand (in both present condition and recent progress) with respect to public health protection, street lighting, infant mortality, parks and libraries, provision of kindergartens and evening schools, crime, and the like?

Finally I may call attention to the fact that comparative studies of the changes in the school work of individual cities during the past ten, twenty, or thirty years are likely to be even more instructive than the comparisons of present status to which we have been accustomed to confine our attention. The latter portion of the present article is, I believe, the first attempt to use on a large scale the statistics of educational changes measured separately for each city or other educational unit.

Only those schools were taken which were co-educational, and which represented the entire system of public secondary education in the community. There were 204 in all, so that the comparison concerns roughly the top and bottom fifths with respect to the sex balance of the staff. The same method is available for far more important problems than that of the sex balance in schools. It should be applied to all administrative problems. An apparent lack of change in the country

as a whole may be the result of enormous, but opposite, changes in different localities or institutions; and, of course, apparent general change in one direction may conceal similar enormous individual differences. By individualizing the measurements of change for different features of educational practise and correlating them, we may learn vastly more of their nature, and, under certain conditions, of their value.

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VIII

PHYSICS TEACHING IN SECONDARY SCHOOLS

[A committee to study the subject of physics teaching in secondary schools has been in existence for some time past in response to action taken by the North Central Association of Colleges and Secondary Schools. This commission has invited expressions of opinion on the subject from twenty persons, five of whom were chosen because of their relation to the subject as students of psychology and education, five from the ranks of college teachers of physics, and ten from the teachers of physics in normal and secondary schools. The following is one of the twenty expressions of opinion sent to the committee.]

1. The topics chosen and the method pursued should be determined by the intellectual needs and interests of pupils of secondary school age. College admission tests in physics should be made to depend upon the secondary school teaching of that subject, when properly organized and conducted, and not *vice versa.*

2. The teacher should put out of his mind the thought that each pupil before him is aiming to become a specialist in physical science, or that the study of physics is his main interest in life. Instead of following the logical order of topics as this would present itself to an expert physicist, he should follow the psychological order as this reveals itself in the natural working of an intelligent and curious mind of secondary school age.

3. Physical science should not be presented as something fixt and definite, whose conclusions are final, but rather as a division of organized knowledge which is constantly expanding and developing, and which has frequently, within historic

times, corrected its conclusions in the light of later discoveries. To this end some outline of the history of physical science and of the time and order in which its fundamental laws were discovered and developed should be given to the student. Wherever it is possible to relate the discovery of new applications of a physical principle to man's other activities, this should be done, in order that the student may be made to feel from the beginning the intimate relation between the laws and phenomena with which physics deals, and other human interests. In other words, the teaching of physics should be humanized.

4. As a farther step in the humanizing of physics teaching, the pupil should be brought to know something of the men whose names are epoch-marking in the history of physical science. Such names as those of Archimedes, Galileo, Newton, Kepler, Gauss, Young, Gay-Lussac, Davy, Faraday, Helmholtz, Kelvin, Torricelli, Ampère, Joule, Mayer, Fresnel, Galvani, Volta, should be familiar to the student, and he should be able to tell something of who these men were, when they lived, and what they did which causes them to be remembered in the history of science.

5. By material drawn from the third book of John Stuart Mill's *Logic,* or from Professor Jevons's *Principles of science,* the student should be made to understand the significance of the inductive method, of the verification of hypothesis, and of the formulation of so-called laws of nature.

6. The ordinary standards for measuring time, space, weight, and other characteristics, should not be taken for granted, but their origin and history should be made plain and their fundamental principles discust. Under this head I would include also the thermometer, the barometer, the microscope, the telescope, and the spectroscope.

7. It is difficult for one not himself a physicist to make any profitable suggestions as to the subjects to be selected for presentation to students of physics in secondary schools. In general, however, it may safely be held that these subjects should be those general ones which relate in an elemental or fundamental way to matter and motion. The tendency observable in many school textbooks to pursue these subjects

into very refined and subtle inferences, is to be deprecated. Taught in this way the beginner loses his sense of perspective, and physics repels rather than attracts him.

8. Far too much has been made in recent years of accuracy of measurement in the teaching of elementary physics. It is much more important to throw emphasis upon the descriptive aspects of the science and to feed the growing mind with food that really interests it and helps it to grow, than to pursue the will-o'-the-wisp of training some imaginary power of habitual accuracy. Accurate measurements have their place in the teaching of elementary physics, but that place is a subordinate one. The main task is to teach the constitution and behavior of matter as it presents itself to the human power of perception, and the laws of motion as these have been observed and deduced, together with the relation of these to man and his activities.

NICHOLAS MURRAY BUTLER

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IX

DISCUSSIONS

CO-EDUCATION AGAIN

The elaborate attack of Mrs. Olin on certain statements in my article on Co-education in the EDUCATIONAL REVIEW of May, 1908, seems so absurdly out of all proportion to the issue involved that at a first reading I had concluded to ignore it, but I have latterly had several occasions to observe how often opinions are formed not on original statements, but on reports of such statements by others.

What has incensed Mrs. Olin to so unusual a degree? I found in an address of President Van Hise, delivered in Boston before the Collegiate Alumnæ at the quarter-centennial meeting, a series of statements about some experiences with co-education, which he felt constrained to discuss. According to him, they are recognized at a number of state universities (which are co-educational), and as he does not except his own university, it is fair to infer that the same difficulties exist there as elsewhere.

Why, then, does Mrs. Olin call *me* to account, and charge me with selecting the University of Wisconsin, and especially its women students, for my attack? If an attack is in order, it would seem to me that President Van Hise was the one to hold up to censure. Had I misquoted him, I should be ready to accept his correction, but he has taken no exception to my interpretation; I am compelled, therefore, to assume that it is just a little more convenient to heap abuse on an outsider than to challenge openly the correctness of the President's facts.

Surprize at the mode of attack was increased when I found in the progress of the article the following quotation of my language. Mrs. Olin contends that according to my state-

ment the women students of the Wisconsin University afford a "serious menace" in the "presence of many . . . who have no serious purpose, who attend to win social prestige." What I *did* say (EDUCATIONAL REVIEW, May, 1908, p. 469) was this: "There must be grave occasion for doubt when the president of a co-educational university like President Van Hise of Wisconsin, points out a serious menace in the presence of many *men and women in colleges like his,* who have no serious purpose," etc.

I leave it to the readers of this REVIEW, whether in view of the animus that has prompted the suppression of the italicized words it is possible to carry on a fair argument. I will only add that there was no attempt to single out the women students of Wisconsin for reprobation; I referred to their President's statements about women students at a number of co-educational state universities; as stated in other parts of my address, I base my arguments on expert testimony.

There is one particularly sad feature about this diatribe against frank utterance of opinion; it confirms experiences gained at other points. Intolerance toward progress and advance is but too often encountered among those who have partially advanced.

Mrs. Olin, and others of her way of thinking, seem to believe that the final word on the higher education of women is co-education. Many of us, and especially many able college women, believe that it was but the first word, that it marked a valuable, an inestimable, beginning, but only a beginning. To a large gathering of such thoughtful women my remarks were addrest, and seemed to commend themselves. We are not the obstructionists, the reactionaries, nor is it at all part of our scheme that men, and men only, shall dictate the further lines of advance; we are all seeking light, we are certainly not likely to get it from such lines of argumentation as Mrs. Olin has offered in the article in question.

JULIUS SACHS

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

COLONEL LARNED'S INDICTMENT OF THE PUBLIC SCHOOLS

The paper on the "Inefficiency of the public schools," in the September number of the *North American review,* by Colonel Charles W. Larned, is receiving widespread comment. There are those who take the indictment as final evidence that the public schools are an ignominious failure.

In the entrance examinations to the Military Academy last March, 265 of 314 candidates, or 84 per cent., failed to make the minimum passing grade of 66 per cent. in one or more subjects. Twenty-six failed in everything. Ninety-five failed in four or more subjects. Eighty-two failed also in the physical examination. These boys came from every part of the country, one from each Congressional District. Failures are distributed about equally over the whole area. In Massachusetts, 16 of 22 failed; in Illinois, 10 of 12; in California, 8 of 10. The candidates had attended school an average of 9 years and 11 months. Most of them had had from two to four years of high school work, and 135 had been in college one year or more. Yet, 265 failed in the examination which included algebra, plane geometry, English grammar, English literature and composition, United States history, general history, and common school geography.

Now selection has a great deal to do in determining the validity of these results as a fair estimate of the work of the public schools. Were these 314 boys typically representative of the public schools from which they came? "Internal evidence" has a bearing here. Are the public schools of New Jersey in which "F." has been for ten years and five months responsible for "orbet, gess, orther, cival, thees methods were very crual"? Are the public schools of Massachusetts to be rated by the showing of "I.," who had been in them for thirteen years, and who failed in everything but geography, making 21 per cent. in algebra, .03 per cent. in geometry, and 45 per cent. in grammar? Are Michigan public schools a dismal failure because "J.," who attended them ten years and five months, made an average of only 36 per cent.? The detailed excerpts from the answers of a number of such candi-

dates are sufficient to convince any one at all familiar with boys of from 17 to 20 years who have been continuously in school work that these results are much more an evidence of limitations of capacity than of general inefficiency in the schools. One conversant with the work of the public schools will at once realize that these candidates are not typical of the average product of ten years of public school work. Poor as the work of the public schools may be in some cases, they can make a better showing with a selection of really representative products.

The trouble is evidently in the selection of candidates. Does the Military Academy attract boys, and in a larger measure still, the fathers of boys, who are of full average ability? May not the same causes that necessitate constant recruiting for the Army and Navy operate also in determining a low standard of quality in the candidates desirous of entering the Academy? Indeed, the very motives of some fathers in sending their sons to such a school is in the fact that they offer little hope of success in anything else. I am personally acquainted with a boy of the same type as "F.," "L.," and "J." Altho he "slides" thru his work and is promoted from year to year, he is not at all representative of average ability. His father is so situated and related that he could easily have him nominated as a candidate for the entrance examination to the Academy. Indeed, if he thought the boy could pass, he would gladly have him go with the hope that the Academy could make something of him—an accomplishment seemingly beyond the father.

The report of Colonel Larned certainly suggests that this particular selection of candidates included a large percentage below the average, not of training, but of ability. In the college entrance examinations for the same territory, where the range and difficulty of the examinations as a whole are much greater, there is no such generally deplorable condition found. The public schools should not be judged as wholly inefficient simply because less than one one-hundredth of one per cent. of their product selected as candidates for the Military Academy are found deplorably wanting, unless this selection represents

a genuine average of results. Native ability, raw material, is a factor not to be neglected. Rather than wholesale repudiation of the public schools, is it not the problem of the Academy to investigate the methods of its selection of candidates and to make its work such as will attract young men of a better grade of ability? There can be recruited from the public schools, within the age limits, candidates of any reasonable degree of excellence if the end is sufficiently desirable.

FREDERICK G. BONSER

NORMAL TRAINING SCHOOL
MACOMB, ILLINOIS

X

REVIEW

University administration — By CHARLES WILLIAM ELIOT. Boston: Houghton Mifflin Co. p. 266. $1.50 net.

The development of Harvard University under Mr. Eliot's leadership is one of the most important facts in the educational history of the United States. While any publication of Mr. Eliot's demands and rewards the attention of thinking people, this book, issued just as he announces his retirement from the presidency of Harvard, is of peculiar interest. Its publication at this time, moreover, is especially important because it furnishes a refutation, all the more striking because apparently it is not deliberate, of a number of statements upon university policies recently published here and there thruout the country. These statements show that there are a number of men in the service of our universities who really ought to know better, but who apparently think that every member of a large academic community has a prescriptive right to a share in the administration of every part of the institution. In the vigorous, direct English that is always a delight, and particularly so after a dose of the vague accusatory generalities of those who cry out against University autocracy, and with the well-ordered structure of the clear thinker, Mr. Eliot shows the immense volume of things that must be done and done both expertly and promptly in the modern university, and shows the necessity of a responsible centralized administration to do these things, in order that the teacher may give his instruction to the best advantage, that the investigator may make his researches, and the whole institution may fulfil adequately its function as a public servant. He is, indeed, not blind to the dangers of unchecked administrative zeal— as is shown by his appreciation of the conservative value of

the Harvard Board of Overseers and of the need of a democratic form of departmental organization; but he understands what these critics of university administration do not—the distinction between constructive administration, where there should be provision for consultation and, in some cases, for formal faculty vote before action; and routine administration, the carrying out of policies already determined upon, where these are neither necessary nor desirable.

There is no question as to the importance of the book, nor of the fact that every one interested in university administration should study it carefully; and yet one must confess that it is strangely one-sided. Barring a few general statements as to the peculiar relation of the tax-supported institutions to the communities which maintain them, there is practically nothing in the book which would not have been included had the title been "Harvard University Administration." Fortunately for the reader, Harvard is one of the best administered corporations in the country, but it is not the only university where administrative problems are dealt with carefully, and, in general, successfully. There is no reference to the interesting and important steps toward the solution of these questions which have been made and are being made all over the country, notably at Princeton, Columbia, Chicago, Wisconsin, California, and Stanford. For example, the organization of a University Council, or Senate, for the consideration of matters affecting more than one faculty, is not even mentioned, and yet this is the very thing which, in the minds of many people, Harvard herself most needs. No one would learn from President Eliot's book of the existence of the combined collegiate and professional course of study which is in operation today in every one of the larger American universities except Harvard and Johns Hopkins; while, on the other hand, the policy of unrestricted undergraduate election is recommended as heartily as tho nineteen out of twenty institutions in the country were not doing their best to get away from it.

In a way, the book marks the passing of an era. No one in the future will speak with just the kind of authority which

Mr. Eliot possesses, because the day of the pioneer has past. Even if here and there one of those who follow him may be blest with Mr. Eliot's great ability, men are not likely to take his *ipse dixit* in educational matters. Whether the reports of the Carnegie Foundation, with their voluminous tables, are a cause or a symptom need not concern us, but we must realize that from now on educational hypotheses must be submitted to the same rigorous statistical tests as are hypotheses in biology and physics.

It would be ungracious and unfair, however, to close any mention of President Eliot's book upon a note of dissent. We should rather express our sincerest gratitude to him for the mass of clearly stated information and the wise comment thereupon which he furnishes, and, above all, for the half-century of service and leadership which made the writing of the book possible.

FREDERICK P. KEPPEL

COLUMBIA UNIVERSITY

Professor Jenks of Cornell, who has a distinct capacity for simple exposition, has made a little book entitled *Life questions of high school boys* which is wholly admirable and would be found exceedingly useful by parents and teachers. (New York: Young Men's Christian Association Press, 1908. 144 p.)

Professor Royce of Harvard is well known as one of the most thoughtful writers of our generation, not only on his own subject but on general questions of public interest. His latest volume of essays entitled *Race questions, provincialism, and other American problems* is an exceedingly vigorous and lofty discussion of topics of present public importance. In the brilliancy which surrounds Professor Royce's colleague, William James, the greater solidity and power of Professor Royce's intellectual achievements are not as clearly recognized as they should be. (New York: The Macmillan Co., 1908. 287 p. $1.25.)

It is a pleasure to welcome a new and revised edition of *American charities* by the late Amos G. Warner, which is carefully revised by Miss Coolidge, formerly a member of the teaching staff at Stanford University. The book has been and remains the best of its kind. (New York: Thomas Y. Crowell & Co., 1908. 510 p. $2.00.)

A book of more than usual value and attractiveness is *Poems of American history,* collected and edited by Burton E. Stevenson of the Chillicothe Public Library. The book would find an excellent use in connection with the teaching of American history in schools and colleges, and we hope that in time it may be largely used for the purpose. (Boston: Houghton Mifflin Co., 1908. 704 p. $3.00.)

A charming bit of academic piety is found in the biographical sketch entitled *Carla Wenckebach, Pioneer,* by Miss Müller of Wellesley College The life-sketch is intensely interesting and the treatment of her material by Miss Müller is astonishingly good. It may be truthfully said that the book is much more than a mere biography. It is a charming bit of writing and a gentle and kindly sketch. (Boston: Ginn & Co., 1908. 290 p. $1.25.)

The well-known and accomplished historian, Dr. James Schouler, has in his little volume *The ideals of the republic* traced clearly and vigorously the intellectual, social, and political ideas upon which the American people have built their civilization. It is not too much to say that Dr. Schouler's treatment of the constitutional and philosophical principles underlying the American government is masterly and that his pages are full of suggestions for those who are concerned with the problems of the present. We deeply regret that so important a book is without an index. (Boston: Little, Brown & Co., 1908. 304 p. $1.50.)

The ever-present charm of Oxford makes any well-written book on that ancient university and its life a joy to scholars.

A well-known Oxford don, Mr. A. D. Godley, offers in his *Oxford in the Eighteenth Century* a charming series of sketches of the academic long ago. Contrary to common impression, the life of Oxford has always been closely interwoven with the principal and public interests of the time. Oxford has trained untold leaders of English life, public as well as intellectual. Mr. Godley's book may be cordially commended to the lovers of the academic life and its history. (New York: G. P. Putnam's Sons, 1908. 291 p. $2.25.)

The extraordinary interest which has attached to curiosities of number and form is again manifested in *Magic squares and cubes* by W. S. Andrews. Students of mathematics will find much that is suggestive and interesting. (Chicago: Open Court Publishing Co., 1908. 200 p. $1.00.)

The question of a double standard of monetary values will not down, despite the apparent agreement of the civilized nations of the world upon a single standard money system. There are many earnest and intelligent men who continue to point to the distress and loss which such a system causes and to urge the substitution of a double standard. In *Money and profit sharing,* James C. Smith, who has already written much of interest on this general subject, brings forward an ingenious and learned argument in favor of another than the existing standard of monetary value. (London: Kegan Paul, Trench, Trübner & Co., 1908. 232 p. 7s. 6d.)

A well-known clergyman and educator, Mr. Theodore C. Williams, with more than ordinary capacity for verse-making, has made a very readable translation of the *Æneid of Virgil* into English verse. Tested by a number of well-known passages, the rendering is both scholarly and of sound literary feeling. (Boston: The Houghton Mifflin Co., 1908. 456 p. $1.50.)

The foundations of mathematics by Paul Carus reflects the wide reading, the very considerable scholarship and the clear-

ness of exposition of its author. (Chicago: Open Court Publishing Co., 1908. 142 p. $1.00.)

A genuine curiosity is *Robinson Crusoe* in Esperanto. The book is not attractive to look at and has a desperately Scandinavian suggestiveness. (Philadelphia: Henry Altemus Company, 1908. 143 p. $1.00.)

President Faunce of Brown University has brought together in his *Educational ideal in the ministry* his Lyman Beecher lectures delivered at Yale University some months ago. They contain robust counsel and vigorous thinking for the theological student of today. (New York: The Macmillan Co., 1908. 286 p. $1.25.)

Professor Edwin Post of De Pauw University has edited a selection of about 2,500 verses in his *Selected epigrams of Martial.* There is perhaps no better material for studying the private life of the Romans than this book. (Boston: Ginn & Co., 1908. 402 p. $1.50.)

The student who is beginning the study of economics will find himself helped by keeping before him *An outline of economics* by John Daniels, which is nothing more or less than a very concise synopsis of the entire field of economic science. As a guide, the book will help the student get his ideas in order and keep them so. (Boston: Ginn & Co., 1908. 28 p. 40c.)

Education and national character is a volume containing papers selected from the large number read at the last annual meeting of the Religious Education Association. They make a very valuable volume for inspiration and for reference. (Chicago: Religious Education Association, 1908. 319 p. $2.00.)

In the series known as French Classics for English Readers, there now appears in two volumes a rendering of *Molière* by Professor Curtis Hidden Page of Columbia University with an

introduction by his colleague, Professor Brander Matthews. Professor Matthews is the first English-speaking authority on Molière and the French drama, and his introduction is marked by all his wealth of knowledge and charm of style. Professor Page's renderings of the French dramatist are both skilful and agreeable. (New York: G. P. Putnam's Sons, 1908. 2 vols. 388, 468 p. $5.00.)

The first publication to appear under the auspices of the Russell Sage Foundation is entitled *Medical inspection of schools,* by Messrs. Gulick and Ayers. The authors describe their book as one of the bi-products in the investigation of backward children. Few more helpful and suggestive books for teachers and school officers have recently come to our notice. (New York: Charities Publishing Committee, 1908. 276 p. $1.00.)

"Any book that helps a student to write good English need not apologize for its publication," say Messrs. Percival and Jelliffe of Oberlin College, the compilers of *Specimens and exposition of argument.* "Amen" say we, but we think the material of the book might have been greatly improved. (New York: Macmillan Co., 1908. 362 p. 90c.)

In Viking Land by W. S. Monroe is an unusually attractive book of travel. Unlike most books of travel this volume contains appropriate references to the culture and civilization of the people of Norway as well as descriptions of their scenery and domestic life. It is a good book. (Boston: L. C. Page & Co., 1908. 332 p.)

The Epistle to the Hebrews, edited by Professor Goodspeed of the University of Chicago, is an attempt to bring the results of Biblical scholarship within the reach of general readers. This volume is one of the series entitled The Bible for Home and School, and the entire undertaking is from every point of view commendable. (New York: The Macmillan Co., 1908. 132 p. 50c.)

XI

NOTES AND NEWS

The National Education Association at Denver

The formal announcement has been made by the Executive Committee that, preliminary arrangements being satisfactorily agreed upon, the next annual meeting of the National Education Association will be held at Denver, Colo., July 5-9, 1909. After an interval of fourteen years, the Association returns to the delightful city at which one of the most enjoyable and successful of its earlier meetings was held. It was at the Denver meeting of 1895 that the action was taken to separate the membership of the Association into active and associate, which has resulted in increasing so greatly both the dignity and influence of this great national organization of teachers. The extraordinarily warm welcome tendered by the people and teachers of Denver in 1895 is still well remembered, and there is every reason to believe that in 1909 the enthusiasm with which the Association will be greeted will be greater still.

An important step has been taken by the Executive Committee in authorizing and requesting President Harvey to secure the appointment in each state and territory of a Committee of Coöperation under the chairmanship of the State Director of the year. It will be the duty of these committees to do what they can to promote the interests and to extend the influence of the National Education Association: First, by procuring as many active memberships as possible; second, by reporting to the State Teachers Association and other bodies the results and spirit of the annual meeting of the preceding year, and, third, by pressing as earnestly as practicable the advantages of a large attendance upon the national meeting next following. These Committees of Coöperation will consist naturally of some of the most devoted of the active members in each state

and territory, and systematic work on their part on behalf of the Association for which they have long manifested such devotion can not fail to be both successful and highly advantageous.

The Status of Physics Teaching

The EDUCATIONAL REVIEW is glad to print in this issue an article in which the State Inspector of High Schools in Wisconsin, Mr. Terry, discusses the significance of a movement which has now obtained considerable headway, to improve and develop the teaching of physics in secondary schools. We can not help thinking that superintendents and principals of secondary schools the country over will welcome this article, because we feel that they are in substantial agreement in holding that the subject of physics as at present taught yields very meager educational results, when the time, the energy, and the money expended on this subject and its equipment are considered.

For three years past a carefully organized investigation has been in progress to ascertain the cause of this failure of the physics teaching in secondary schools. No fewer than sixteen different educational associations are coöperating thru committees or individuals in this inquiry. The work of investigation has advanced to a stage which seems to us to diagnose, with reasonable clearness and certainty, the fundamental trouble in the matter. For a long time past it has been more or less definitely asserted that the physics taught in the secondary schools is too abstract and too mathematical; but these terms have not been apprehended with sufficient clearness or definiteness by the teachers of physics to enable them to reorganize their work intelligently.

While not a few experienced teachers of physics hold that the simple arithmetical operations involved in many of the problems set in high school physics are well within the power of pupils to understand, yet we find ourselves in agreement with those critics who ascribe the failure of physics teaching in the secondary schools to the abstract and mathematical character of much of the instruction given.

What is meant by saying that secondary school physics as now taught is too mathematical, is that the student never gets clear and concrete concepts either of the physical quantities involved in his operations, or of the physical relations between those quantities. Therefore it is that he can not use his mathematics, however well he understands the subject, in stating these physical relations and in solving the physical problems put before him.

In other words, the trouble with secondary school physics is a trouble of the same kind as that which afflicts secondary school Latin, algebra, and English. No one of these subjects is properly presented as an element of human interest. It is at this point that the secondary school teachers most largely fail. As they grow in scholarship they seem to grow in power and in capacity to dissociate the subject-matter of their teaching from the pupil's intellectual interests. In other words, physics teaching must be humanized if it is to be vital, and if it is to be successful it must be taken out of the hands of pedants and pedagogs and put into the hands of persons who can and will teach.

Europeans in the United States

The Huxley Memorial Lecture for 1908 before the Royal Anthropological Institute of Great Britain and Ireland was delivered by Professor Ripley of Harvard University. His subject was "European population in the United States," and his statements and inferences have excited widespread interest and discussion.

Professor Ripley, in opening, observed that in America the population product was artificial and exotic, and as yet unrelated to its physical environment—a human phenomenon unique in the history of the world being the result. Time was needed, not only to show the effect of the physical environment, but also to demonstrate the laws of inheritance which were certain to emerge from so heterogeneous a mix-up of all the nations of the earth. One must be content at this time rather to indulge in speculation and prophecy than to revel in

the more positive delights of somatological statistics. This was the field in which a great generalizing intellect like Huxley's would have been at its best. The lack of precise data he attributed to the urgency of the problems presented by the affairs of men rather than by their physical persons. The day would indeed come when science would awake to the opportunities presented by the ethnic composition of the present whole population of the United States. Judged solely from the standpoint of numbers, the phenomenon of the American immigration was stupendous. About 25,000,000 people had come to the United States from all over Europe since 1820. Further, whereas until about twenty years ago the immigrants to the United States were drawn from the Anglo-Saxon or Teutonic populations of Northwestern Europe, since that time they had swarmed over in rapidly growing proportions from Mediterranean, Slavic, and Oriental sources. They had even tapped the political sinks of Europe, and were now drawing large numbers of Greeks, Armenians, and Syrians. No people was too lowly or mean to seek an asylum on those shores. The net result of this immigration had been to produce a congeries of human beings, unparalleled for ethnic diversity anywhere else on the face of the earth. The group of foreign-born and their children constituted today upwards of one-third of the total population, and, by excluding the negroes, it equaled almost one-half, or forty-six per cent., of the white population. After giving various illustrations of this ethnic diversity and its distribution, he went on to say that the primary and fundamental physical question was whether these racial groups were to coalesce to form ultimately a more or less uniform American type or whether they were to continue their separate existences within the confines of one political unit. The extreme mobility of the population, ever on the increase, was evidently a solvent force from which powerful results might well be expected in the course of time. This was rendered peculiarly patent by the usual concomitant, that the mobility was largely confined to the male sex. Almost their entire population had been transplanted, often many times, moving by stages from state to state. This restlessness

had always been characteristic of the original stock. A second influence making for racial intermixture was the ever-present inequality of the sexes among the foreigners, most apparent when they first arrived, about seventy per cent. of them being males. The subtle effect of change of environment, religious, linguistic, political, and social, was another powerful influence in breaking down ethnic barriers. In the moral and religious fields this was plainly noticeable and often pathetic in its results. Differences of language were also less powerful dividing influences than one would think, especially in great cities. Among the influences tending to hinder ethnic intermixture might be mentioned the effect of concentration or segregation of the immigrants in compact colonies, which remained as truly outposts of the mother civilization as were Carthage and Treves. But evidence of true intermixture across ethnic lines was not entirely lacking. Mixt marriages constituted a beginning, and they occurred oftener, especially in great centers of population. As to whether the result of racial intermixture was likely to be a superior or an inferior type, judging from the continent of Europe, and reasoning on the basis of the whole evolutionary hypothesis and the survival of the fittest, one was almost compelled, said Professor Ripley, to accept a favorable conclusion. Crossing of types must not be too violently extreme, or there was a tendency to cause reversion to the original stock, but Nature proceeded in her work by short and easy stages. The supremacy of the Anglo-Saxon had been manfully upheld in other lands to which he had fared forth; and the primary physical brotherhood of all branches of the white races must be admitted on the faith of scientific probability. They had a responsibility in Canada and the United States so to nourish, uplift, and inspire all the immigrant peoples of Europe that in due course of time, even if the physical stock were inundated by the engulfing flood, the torch of Anglo-Saxon civilization and ideals, borne by our fathers from England to America, should yet burn as bright and clear in the New World as their fires had continued to illuminate the Old.

Lord Morley on University Problems

Lord Morley, as we must now learn to call the familiar John Morley, was chosen Chancellor of the University of Manchester, in succession to the late Earl Spencer, and at his recent formal installation delivered an important address. Lord Morley said that his imagination was stirred by thinking that the new type of university—the type represented by the Manchester University—was founded by a homely man of business living in Manchester, and who, with a prescience of the wants of the age which struck one as truly remarkable, had done for the new age what kings, princes, and cardinals of the church did when they established the great and venerable foundations of Oxford and Cambridge. The differences were very obvious. They in Manchester had not got the splendid charm, the glorious inherited associations of those two ancient seats of learning; but that would come, and in the meantime it was not all loss. There was a certain gain in a learning and teaching body being in constant, close, and responsible contact with so vigorous and energetic, and intrepid a community as the people of this part of Lancashire.

A great change was coming over the world, and especially the Lancashire world. When John Owens first conceived this idea in 1850, Lancashire and the whole industrial and commercial community of the country were entering upon a new age. Old ideas were fading before new demands. Literature was beginning to pale before the acquisitions of science, and new industrial demands of every kind arose. John Owens, in his testament, made one or two very remarkable provisions, which Lord Morley ventured to hope all universities that existed and were founded on the type of Manchester University would bear in mind. First of all, he thought of teaching before building. Tho he was preparing for the new, he did not quarrel with the old; and that was an admonition that might be commended to some of them. The institution was for higher education in such branches of learning as were usually taught in English universities. He was not going to enter upon the difficult controversy of compulsory Greek. He had a view upon it, but probably they had a better, and a better justified

one. He was content to leave that great theme where it was; but on the day when they were quite sure that what we called "the Ancients" had nothing to teach which it would be good for them to learn—on that day they had his consent as chancellor to leave classical elements out of their education, and not before. He was very sure that day would not arrive in a hurry.

He urged them not to allow technical teaching, valuable as that science was, to throw into a second place the true object and scope of a university. It was a remarkable and encouraging fact that there had been no disposition during the last twenty or twenty-five years among the many benefactors of these institutions to limit their benefactions. On the contrary, some of the most remarkable of these benefactions had been for music, for philosophy, for theology, and for literature. This would seem to justify them in hoping that merely and purely technical teaching would not drive out teaching of the university type. They had now an admirable library—and some had said that a library was a university. He rather agreed with those who said, in the words of a great man who had studied university teaching, "The general principles of a study you may learn by books at home—the detail, the color, the tone, which make it live in us all, these you must catch from those in whom it lives already."

The existence of a university gifted with a great, energetic, and intrepid spirit like that of Lancashire and the surrounding districts diffused an intellectual atmosphere which made life better worth having for everybody who had the opportunity of breathing it. He would commend to them the words of Bacon, "When you read, when you study, remember you do it not to contradict or confute, not to believe or take for granted, not in order to find talk and discourse, but to weigh and to consider." That was what men ought to learn in a university, and not even the splendid enterprise of the rival influence—so to call it—the Press, dispensed them altogether from the necessity of weighing and considering on their own account.

There was one subject on which he would like to touch.

They had spoken of education as it affected those in the hall who had had access to fountains of learning, the treasures of knowledge; but, after all, work and manual toil were the lot of the world; the majority subsisted by working. He did not know anything more important and desirable than that they should extend to those who made so many sacrifices in their hard lives, in such measure as they could, some knowledge of the kind that made life enriched, enlarged the brain, and stimulated all the pulses of common human-heartedness.

A number of names well known to scholars were included in the list of birthday honors lately conferred by the King of England. Among the new Knights are Nathaniel Budington, Vice Chancellor of the University of Leeds, and J. J. Thomson, Cavendish Professor of Experimental Physics in the University of Cambridge. Alfred Russel Wallace, who shares with Darwin the honor of having discust the principle of natural selection, was appointed to the Order of Merit.